

SIMULATION-GAMING IN
PRE-SERVICE TEACHER EDUCATION:
A CASE STUDY

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
ROGER CORNELIUS NIEMEYER
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ABSTRACT

SIMULATION-GAMING IN PRE-SERVICE TEACHER EDUCATION: A CASE STUDY

By

Roger Cornelius Niemeyer

The purpose of this study was to evaluate the application of a model for instruction of pre-service elementary teachers in the selection, design, use, and evaluation of simulation-games.

Despite the prevalence of literature attesting to the growing use of simulation-games in elementary classrooms, there was limited literature pertaining to instruction of pre-service (or in-service) elementary teachers regarding simulation-game development. This confirmed the need for an exploratory study of simulation-game instruction at the pre-service level.

A systematic analysis of the application of an identified model for assessing simulation-gaming instruction was conducted via the case study technique. The study resulted both in a generalizable model for the methods teachers population and in a series of hypotheses for future research. Moreover, the study produced guidelines

for assisting teacher trainers in making decisions about the use of simulation-gaming instruction in their methods courses.

The study also yielded a theoretical and an empirical evaluation of the model for simulation-game instruction. Utilizing case-study techniques, the researcher recorded observations of (1) instruction prior to the application of the model in the college classroom, (2) the college classroom presentation of the model, (3) three students working on the assignment of writing a simulation-game and (4) the elementary classroom tryouts by each student of his simulation-game.

Instruments were designed and administered by the researcher in an attempt to assess: (1) student subjects' attitudes and reactions before and after they wrote their simulation-game and tried out their product in classrooms and (2) student subjects' anxiety in retrospect at the completion of the model. Data generated by these observations and instruments were analyzed.

Some of the most significant conclusions were as follows:

1. The model fulfilled its intended purpose. It was easily understood, was not oppressive to implement, was productive (evidenced by the quality of student made simulation-games), and was a source of feedback about instruction (evaluations of students

and supervising teachers of tryouts). Moreover, the model accommodated unforeseen contingencies (student and instructor absences, last minute schedule changes) and did not impose unreasonable demands on the instructor or student. The model appeared, then, to be generalizable to other elementary methods courses in other teacher training institutions.

2. The common experience of playing a simulation-game effectively served as an introduction to and as a referent for both the instructor and the students. This was evident from spoken as well as written statements. The effectiveness of experience of performing in a simulation-game served as a referent. This ability to identify is due not only to the high degree of student participation but also the interaction and realism characteristic of this teaching technique. This common frame of reference to a high degree provided structure for the remainder of the unit.
3. As evidenced by classroom tryouts, lesson plans used in the study assisted students not only in determining the advantages and disadvantages of simulations but also in writing simulation-games that avoided the disadvantages and achieved many of the advantages of the instructional technique.

Presumably such skill should contribute to their ability later as classroom teachers in determining when or when not to utilize an existing simulation-game and how to write a simulation-game that will maximize existing curriculum.

4. Students who made regular, direct observations of the children for whom they were developing simulation-games were evaluated more highly by the instructor (grade assigned simulation-game) and by the supervising teacher (rating classroom tryout), than was the individual who had only limited elementary classroom observations. This would lead one to believe that an individual who repeatedly saw a child functioning in a classroom would develop a better concept of the child's reading limitations, motor skills, and interest span, which would, in turn, tend to support the theory that pre-service teachers should have clinical exposure throughout their training period.
5. Application of the model provides one aspect to teacher training that typical college classroom instruction alone does not; first hand exposure to the real problems of teaching a simulation-game in an actual elementary classroom.

6. The lesson plans used in the study helped students master the vocabulary relevant to simulation-gaming, build skill in identifying issues and/or processes upon which simulation-games focus and develop proficiency in writing simulation-games. These were manifested in oral and written statements, a finished product (student-produced simulation-games), and a favorable assessment by a supervising teacher of the classroom tryout. All students were able to complete the assigned task of writing a simulation-game to the satisfaction of the instructor. This degree of success might encourage other teacher trainers to adopt or adapt these lesson plans.

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Roger Cornelius Niemeyer

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

College of Education

1972

017265

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ACKNOWLEDGMENTS

The author would like to acknowledge the assistance of the many individuals and groups whose interest and support made this study possible.

The investigation would not have been possible without the generous and enthusiastic cooperation of the numerous Michigan State University students, East Lansing teachers and elementary school students.

I am particularly indebted to Professor William W. Joyce, chairman of my doctoral committee. His encouragement, understanding and wisdom were a continuous source of guidance and motivation.

Appreciation is expressed to the members of the doctoral committee, Dr. Samuel S. Corl, Dr. Daniel Jacobson and Dr. Timothy H. Little, for their interest and suggestions throughout the course of this investigation.

To Miss Jo Lynn Cunningham and Mr. Geoffrey Yager of the Office of Research Consultation Services goes sincere thanks for their help, advice and encouragement.

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CHAPTER I

INTRODUCTION

This study deals with the analysis of the application of a model related to simulation-gaming instruction and the assessment of that instruction. The nature of the problem, the purpose of the study, definitions and limitations, as well as an overview of the design of the study are presented.

Nature of Problem

Alvin Toffler in his recent publication Future Shock¹ suggests that techniques of modeling, gaming and simulations are an effective early step in the treatment and/or prevention of emotional and physical over-reaction to the ever-increasing rates of change we face or can expect to face in the future. Schultz's and Sullivan's review of research literature on simulation-gaming supports this belief. They state:

Simulation has brought together a new community of interest among social and administrative scientists. The interest centers on the use of simulation as a

¹Alvin Toffler, Future Shock (New York: Bantam Books, 1970), p. 462.

research methodology, as a technique for theory building and comparison, as a teaching and training device, and as an aid to practical decision-making in organizations. This community has looked to simulation as a method for dealing with complex processes in situations where experimentation or analytical techniques are not feasible.²

As an instructional technique, simulation-gaming has certain advantages and disadvantages. (This study will use the term simulation-games in a broad sense connotating the areas of modeling, role play, simulation-gaming and/or a combination of these.) Two British educators, Tansey and Unwin, summarize alleged educational advantages of simulation gaming in these words:

1. It motivates the participants.
2. It uses techniques of cooperation as opposed to competition.
3. It enables teaching for the long-range future to take place even with pupils who are not highly motivated to learn.
4. It injects a feeling of realism and relevance into the classroom.
5. It enables complex problems to be made simpler and so to be more easily understood.
6. It changes the social conditions under which learning takes place. The teacher is less directly concerned with administration of discipline and with her function as judge. There is a closer empathy between teacher and taught.
7. It is a structured or programmed presentation of information.
8. It has uses as a selective procedure.

²Randall L. Schultz and Edward M. Sullivan, "Developments in Simulation in Social and Administrative Science," in Simulation in Social and Administrative Science, ed. by Harold Guetzkow, Philip Kotler, Randall L. Schultz (Englewood Cliffs, N.J.: Prentice Hall, 1972), p. 3.

9. Simulations can be prepared by the teacher, and so leave the control of the class in her hands.
10. Decision-making without censure is possible.³

The researcher agrees essentially with this listing of advantages. This acceptance is based upon personal experience not only as a teacher of but also as a participant in a variety of simulation-games. Other authors state similar advantages of the instructional technique.

In addition, Gordon, in her publication, Games for Growth, suggests the following possible limitations of games:

1. Games may be considered too motivating. [Student disappointed if he does not win]
2. Games may be too simplified.
3. Games teach "wrong" values.
4. Games depend on what a student already knows.
5. There is some question of input versus output in learning from games.⁴

These disadvantages do not enjoy the same degree of credence as the stated advantages. This statement is based on the researcher's experience and the lack of supporting literature.

Increasingly social studies educators are becoming interested in simulation-gaming. Their interest is evidenced by the emergence of several professional organizations dealing with various aspects of this field.

³P. J. Tansey and Derick Unwin, Simulation and Gaming in Education (London: Methuen Educational Ltd., 1969), pp. 32-33.

⁴Alice Kaplan Gordon, Games for Growth (Palo Alto: Science Research Association, 1970), pp. 33-38.

Pre-eminent are the American Council of Educational Simulation and Gaming,⁵ American Educational Research Association, Special Interest Group, Simulation Systems⁶ and the National Gaming Council.⁷ Two new journals, Simulation⁸ and Simulation and Games: An International Journal of Theory, Design and Research,⁹ attest to the growing popularity of this field.

Instructors of teacher education courses are seeking ways to educate future teachers in the selection, design and uses of simulation-games. College instructors are particularly interested in (1) characteristics of simulation-games, (2) ways in which such games can be constructed and implemented in classroom situations, and (3) techniques for evaluating the effectiveness of college instruction in simulation-gaming.

⁵American Council on Educational Simulation and Gaming, P.O. Box 5131, Industrial Station, 453 No. Snelling Ave., St. Paul, Minn. 55104.

⁶American Educational Research Association: Special Interest Group: Simulation Systems, John R. Dettre, SIG Secretary-Treasurer (Lexington: University of Kentucky, 40506).

⁷The National Gaming Council, Environmetrics, 1100 17th St., N.W. Washington, D.C. 20036.

⁸Simulation, Simulation Councils, Inc., P.O. Box 8248, San Diego, California. 92102.

⁹Simulation and Games: An International Journal of Theory, Design and Research, Sage Publication, 275 South Beverly Drive, Beverly Hills, Cal. 90212.

Need for the Study

The number, variety and availability of simulation-games related to instruction has greatly expanded. A review of two of the most authoritative works in the field, Instructional Simulation System¹⁰ by Twelker and The Guide to Simulation Games for Education and Training¹¹ by Zukerman and Horn, reinforces this proposition. Moreover, college and university based centers have been established for research and development of simulation-games for use with elementary and secondary students. Prominent in the field are the Academic Games Program, Center for Social Organization of Schools, Johns Hopkins University and more specifically for teacher training, Simulation Systems Programs, Teaching Research, Oregon State System of Higher Education.

A review of the extant research generated by these centers failed to reveal literature related to the development of pre-service teachers' writing skills of simulation-games and their related experiences, i.e. playing, reading and analyzing simulation-games. This finding is not too surprising as these centers are in

¹⁰Paul A. Twelker, Instructional Simulation Systems (Corvallis, Oregon: A Continuing Education Publications, 1969).

¹¹David W. Zuckerman and Robert E. Horn, The Guide to Simulation Games for Education and Training (Cambridge, Mass.: Information Resources, Inc., 1970).

their early stages of development. It does confirm the need for a study of this type.

Definition of Terms

There is some difference of opinion among educators regarding the meaning of some of the following words as used in simulation-gaming. For the purposes of this study, the research utilized the following definitions:¹²

Model.--A model is a simplified representation reflecting important aspects of a more complex real life situation. The model may be symbolic, mathematical, logical or a combination of these. It reflects physical or social reality.

Role Playing.--Role playing is a form of social interaction involving an individual and a status position. Role playing may range in nature from sharply defined positions to open-ended situations.

Simulations.--Simulation is a combination of modeling and role playing. It involves individuals with select elements of reality for dynamic interaction, i.e. negotiation and decision-making. Simulation is often issue-oriented in nature.

Game.--A game has a set goal orientation involving established rules and elements of competition among

¹²Roger Niemeyer, "Model for Methods Instructors to Assess Instruction Related to Simulation Games," Michigan State University, unpublished, 1972.

players to achieve the set goal. Achieving the set goal may be considered "winning." Games often represent a process situation.

Simulation-Game.--A simulation-game is a blend of simulation and gaming including some combination of the elements of modeling reality, role play and competition for motivational purposes. It is characterized by a high degree of interaction.

Chance-Factor.--Chance factor is a condition or conditions beyond the control of the participants, often represented by the toss of dice or the turn of a spinner device. Chance factors may be present in games, simulations and simulation-games.

Purpose

The purpose of this study is to evaluate a model for instructing pre-service teachers in techniques of designing, using and evaluating simulation-games in elementary social studies classes. The model also provides feedback to the methods instructor regarding the effectiveness of his college classroom instruction.

Analysis of the application of this model for assessing simulation-gaming instruction was conducted via the case study technique. This is an exploratory study that may result in a generalizable model for the methods teachers' population and in a series of related hypotheses for future investigation.

Limitations

Listed below are some limitations imposed on this study. These statements seek to clarify the central thrust of this undertaking by indicating those areas beyond and within the purview of the investigation.

1. This study does not seek to create a model for simulation-gaming. The model was already in existence at the beginning of the study.
2. This is not a study of simulation-gaming in the elementary classroom. The thrust of this study is toward teacher education and the assessment of that instruction. The use of elementary classrooms for data collection is ancillary to the basic thrust of the study.
3. Although the focus of the study is on pre-service teacher education, the study deals directly with a relatively limited aspect of this area. Thus, the stated purpose of this study is the systematic analysis of the application of a model for use by methods instructors in assessing their instruction regarding simulation-gaming.
4. This study does not focus on curriculum development. This is a study of an action-oriented model for instruction about a teaching technique and the evaluation of that instruction.

5. This is not an experimentally focused study in the sense that it tests hypotheses. Rather it is a descriptive consideration of the administering of a model that may result in a series of researchable hypotheses for future investigation.

Assumptions

Three basic assumptions governed this study. First, the researcher assumed that the processes of analyzing, creating, and using simulation-games are closely related. Second, the researcher assumed that creating simulation-games is largely a function of first hand experience with such games. Third, the researcher assumed that in-service training related to the model can be provided for a methods instructor.

Overview of the Study

Chapter I will present the nature of the problem under investigation, purpose and the need for the study, definitions of terms and limitations and assumptions of the study.

Chapter II will present related research and design elements of the study. It will include a theoretical evaluation of the model and its implementation.

Chapter III will report the research data resulting from the observations and application of instruments. These data will be presented in a chronological order.

Chapter IV will summarize the study and will report conclusions and recommendations for further investigation.

CHAPTER II

DESIGN OF THE STUDY

This chapter will present the research design of this study. It will include procedures for collection and analysis of data and a description of the theoretical model used in the study.

Research Techniques

This section focuses on case study techniques, their uses, limitations and developmental steps involved in their utilization.

Descriptive Research

This was a descriptive study in the sense that it exhibited these characteristics:

1. The study deals with the application of a model for assessing simulation-gaming instruction;
2. The study further treats the systematic analysis of that application.

The study was experimental to the extent that it did try out the technique of playing a simulation-game as

its initiating activity. Although some statement about the effectiveness of that practice can be made, no hypotheses were tested. Rather the study was predominantly descriptive in nature.

Case Study

The case study technique is one form of descriptive research. According to Sax, "In research the definition of the case study is extended to include any relatively detailed description and analysis of a single person, event, institution, or community."¹ This study provides such a description and analysis of an event, i.e., the application of a model for the assessment of instruction.

Uses

Sax further suggests that case study has several uses in research. (1) The case study is employed to provide the investigator with hypotheses that might be difficult to obtain in other contexts, that is, it is often difficult to know what variables are relevant to a problem under investigation at the preliminary stages

¹Gilbert Sax, Empirical Foundations of Educational Research (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1968), pp. 288-89.

of investigation. Instead of studying large numbers of people or events in order to analyze some feature, it is less expensive and/or simpler to select a limited number of subjects which exhibit the feature. (2) The case study may provide the researcher with a unique situation which can be used to test hypotheses. For example, an individual who was born both blind and deaf but who showed normal emotional responses to various stimuli, even though these could not possibly have been imitated, would be an ideal subject for a test which showed that these exhibited emotional responses were unlearned. (3) The case study may be interesting in and of itself. Perhaps a study of a child reared in an orphanage might display the condition of inability to identify with a mother and father. (4) The case study may also be useful in demonstrating how a theoretical model can be exhibited.²

The final two uses of the case study in research apply to this study in which there is an attempt to develop nomothetic knowledge pertaining to larger numbers of methods instructors and students. Van Dalen and Meyer state that, " . . . a generalization drawn from a single case or a few casually selected ones cannot be applied

²Ibid., pp. 289-90.

to all cases in a given population."³ It is true that the case study cannot be statistically generalized, but suggested representative generalizations can be drawn. Statistical analysis was not deemed necessary in this research because of the limited number of subjects employed, i.e. one methods instructor and three students.

Limitations

When employing the case study in research, there are some limitations or cautions for one to bear in mind.

(1) Van Dalen and Meyer report that there is a "tendency to overemphasize unusual events or to distort them for dramatic effect." (2) They further state that, "An investigator must guard against permitting personal biases and standards to influence his interpretations."⁴

(3) Sax suggests that, "One limitation of the case study as a research technique is that it is difficult to determine which factors, historical or contemporary, are relevant to the phenomenon under investigation. Simply because some event preceded another is no assurance that it is the cause of the other." (4) He further states that, " . . . there has been a tendency in research

³Deobold B. Van Dalen and William J. Meyer, Understanding Education Research (New York: McGraw-Hill Book Company, 1966), p. 220.

⁴Ibid.

using the case study approach to select convenient cases rather than those which can either yield or test hypotheses."⁵

This researcher is cognizant of such limitations and cautions, and he made a determined effort to conduct the research with these in mind.

Developmental Steps

A series of steps for the development of case study research have been devised by Sax:⁶

1. The case or cases to be researched should be selected because they typify the major dimension of the problem. The search is for a case that is a relatively pure and non-complex example of the phenomenon under investigation, not for a random sample from some specific population.
2. Information about the case should be gathered from as many relevant sources as are needed. Sources take many forms, i.e. interviews, tests and records. What constitutes relevance of data depends upon the purpose of the investigation.
3. Once data are collected, hypotheses have to be generated which allow the researcher to confirm or reject the findings obtained from the case study.

⁵Ibid., p. 291.

⁶Ibid., pp. 290-91.

The following considerations were given to the recommended steps in the development of case study research:

1. The model employed in this study, "A Model for Methods Instructors to Assess Instruction Related to Simulation-Gaming," was judged to be a relatively pure and non-complex exemplar of instruction about the development of simulation-games. The model meets the major dimensions of the problem of instructing about simulation-gaming, that is, what are simulation-games, what are their component parts and what are their developmental patterns. The model also provides feedback about that instruction for the instructor.
2. Information about the application of the model was widely collected by direct observation at the respective stages, by recordings and by instruments. The data thus collected were relevant to the purpose of the study, i.e. the systematic analysis of the application of a model for assessing simulation-gaming instruction.
3. The above mentioned data did allow for the generation of hypotheses that allowed the researcher to confirm and reject the findings obtained from the case study.

Conclusion

From a review of the literature and the purpose of the study, it was determined that this study fell in the domain of descriptive research. After a careful consideration of (1) the definition of case study in research, (2) the uses and limitation of the technique and (3) the potential for completing the recognized developmental steps of the process, the author determined that the case study research method was appropriate for this study.

Direct observations were made by this researcher of (1) instruction prior to the application of the model in the college classroom, (2) the college classroom presentation of the model, (3) students working on the assignment of writing a simulation-game and (4) the elementary classroom field test by the students of their simulation-games. These observations were systematically and anecdotally recorded via written notes. Moreover, all sessions of the college classroom application of the model were tape-recorded for later review and analysis by the researcher. The proposed observation schedules of the college classroom application of the model is given in Appendix I.

In addition to these observations, instruments were designed and used by the researcher in an attempt to assess student subjects' attitudes and reactions

before and after they wrote the simulation-game (see Appendix C and D) and used it in classrooms (see Appendix E and F), and to assess student subjects' anxiety in retrospect at the completion of the model (see Appendix G). These instruments, not considered a part of the model, were employed in order to facilitate analysis of the application of the model and to suggest possible implications of the model for other teacher educators.

Model Source

"A Model for Methods Instructors to Assess Instruction Related to Simulation Gaming" (see Figure 1) was used in the study. The model, designed by the researcher, was developed during the 1971-72 school year from the author's experiences in teaching about simulation games and from his attempts to assess the relative effectiveness of that instruction in elementary and secondary teaching methods classes on the Michigan State University campus. An extensive review of recent related educational research also contributed to the development of this model.

Implementation and Assessment

This aspect of the study will describe (1) implementation procedures necessary to make the model operational and (2) procedures for evaluation of the model and its use. Two types of evaluation of the model took

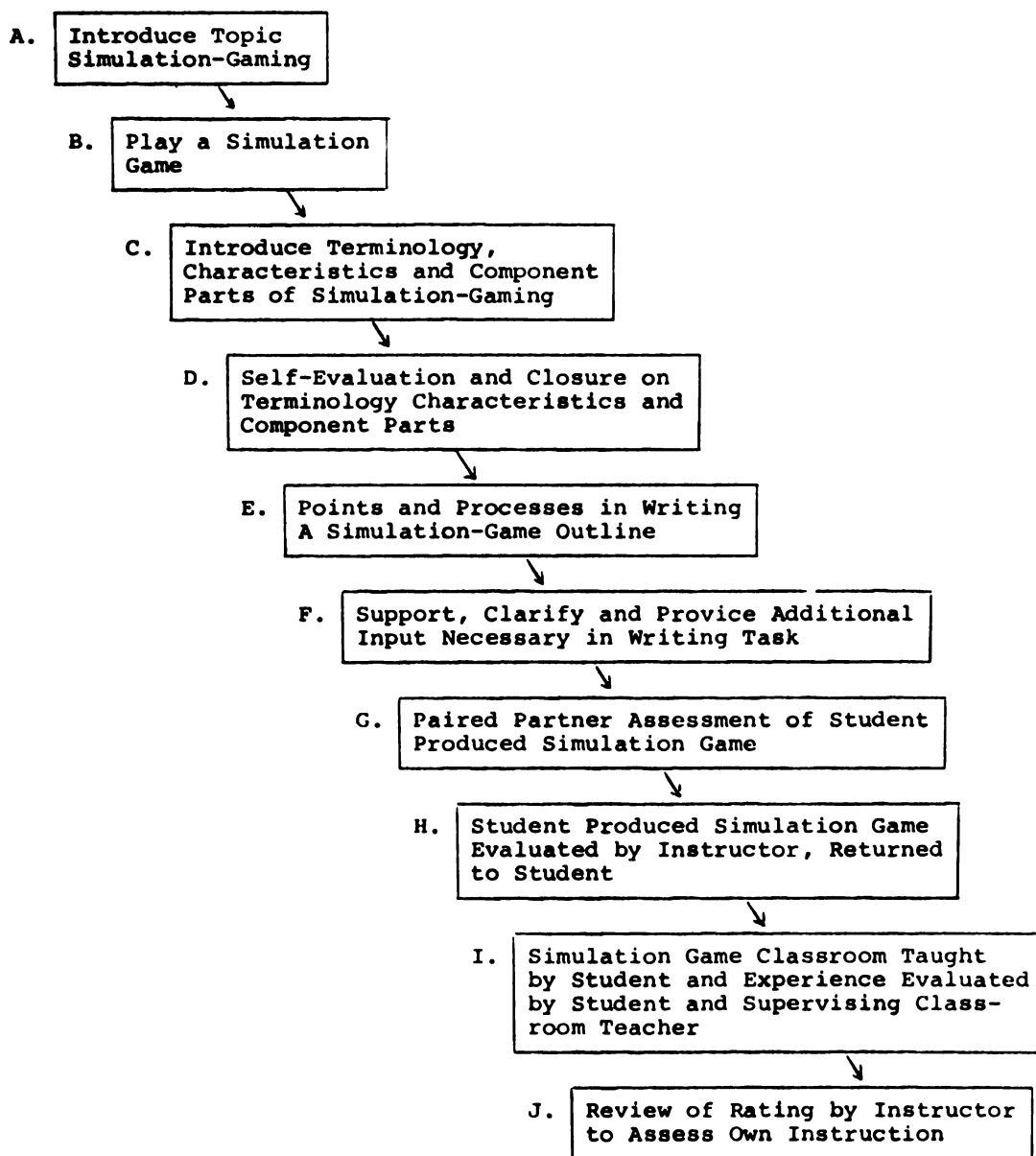


Figure 1.--A model for methods instructors to assess instruction related to simulation gaming.*

* Roger Niemeyer, Michigan State University, unpublished, 1972.

place: (1) a theoretical evaluation involving past research that supported or negated facets or aspects of the model and (2) an empirical review of the model and its implementation involving classroom testing based on observations and instruments. The theoretical evaluation of the model appears here because it assists in the review of empirical data presented in the following chapter.

General Model Assessment

The archetype, "A Model for Methods Instructors to Assess Instruction Related to Simulation Gaming" by Niemeyer, was selected for this study because of its unique assessment of simulation-gaming instruction.

In the researcher's opinion his model is characterized by (1) educational soundness of content (simulation-gaming) and instructional technique, i.e. effectiveness and acceptability, (2) comprehensiveness, i.e. good field coverage, (3) operational potential, (4) observability, i.e. ability of researcher to view application, (5) possible applicability, i.e. usefulness in classroom and (6) availability, i.e. accessibility. The apparent disadvantages of the model are (1) time consumption, i.e. class time is out of proportion to resulting learning and (2) oversimplification of writing technique, i.e. processes

are more complex. Each of these advantages and disadvantages will be explored in greater depth.

Advantages

The model was reviewed by the researcher to ascertain if any advantages were evident. A discussion of these follows.

Educational Soundness

The prime consideration in the evaluation of the model employed in this study was educational soundness. The term implies (1) a condition that tends to encourage or maximize learning and (2) a relatively high degree of acceptance or recognition among professional educators. These criteria were considered necessary in both the subject matter content and the instructional aspects of the model.

Subject Matter

The relative merits of the subject matter content of the model simulation-gaming were considered. This was accomplished by a review of related literature.

Boocock and Schild in their publication, Simulation Games in Learning,⁷ suggest that game designers

⁷Sarane S. Boocock and E. O. Schild, Simulation Games in Learning (Beverly Hills, Calif.: Sage Publications, 1968).

possess the skill of a technology prior to the evolution of the theoretical science. This suggests to educators that educators tend to agree that although simulation-games do teach, the "what" and "why" they teach have not been clearly ascertained.

Gordon in Games for Growth⁸ states several reasons for this lack of evaluation in the field of simulation gaming:

- (1) Relative newness of the technique;
- (2) Consequent lack of time for data collection and the developing of systematic evaluation procedures;
- (3) Difficulty in establishing experimental controls;
- (4) Non-existence of appropriate measuring instruments.

Research studies related to the effectiveness of simulation-gaming as an instructional technique are increasing in number, however. Lewis and Wentworth in a review of forty-two studies in the area of social science simulations and games reached the following conclusions:

⁸ Alice Kaplan Gordon, Games for Growth (Palo Alto, Calif.: Science Research Associates, 1970), pp. 150-51.

1. The use of simulation games generally results in greater student involvement, motivation and interest than do most other learning activities.
2. Generally, no significant differences have been found between the amount of cognitive learning achieved by students taught with simulation-games and students taught by more conventional techniques.
3. Less able students are usually able to perform as well in simulation-games as brighter students, i.e. winning the game.
4. Males usually perform better in simulation-games than do females i.e., winning the game.
5. Although less able participants perform as well in the game as brighter students, the brighter students learn more (as tested on a final test) and they are better able to articulate their winning strategies. Less able students can perform the winning strategies but cannot understand the reasons for the behavior nor can they articulate their understanding.
6. Although females tend to perform less well than males in the exercises, they apparently learn just as much as the males do.
7. The types of media used in the exercise have an impact on participant performance. If the simulation includes the use of both audio and visual media, the performance of participants improves compared to that when only one type of medium is used or none at all.
8. By participating in simulation exercises players may develop more empathy for the roles they are assuming and the complexities of the environment they are dealing with.
9. Repeated use of the exercises seems to improve the decision-making strategies of the participants.
10. Participants appear to develop a better understanding of the system dynamics and respect for the complex interplay of variables in a social system.
11. Educational exercises like simulation-games seem to have similar impacts on different types of particular populations, i.e. age, intelligence, socioeconomic background and formal school differences do not seem to influence the motivation and knowledge gained from the exercise.⁹

⁹ Darrell R. Lewis and Donald Wentworth, Games and Simulations for Teaching Economics (New York: Joint Council on Economic Education, 1971), p. 5.

In the January 19, 1972 "Report on Education Research" the Center for Social Organization of Schools at Johns Hopkins University reported studies of the games "Ghetto" and "Democracy." The research team reported the following findings:

Simulation games are especially effective for teaching facts to students of low verbal ability.

Simulation games affect the attitudes of students who play. In general, "a simulation game can be expected to increase the player's level of tolerance, approval or empathy for the real-life person whose role the player takes in the game."

Emotional arousal during a game (as indicated by fluctuation in heart rate) is related to changes in attitude, and the emotional arousal of one participant in a game is contagious--if one student gets excited, others will, too.

Students of low ability are as capable as students of high ability at learning strategies in the game, but have trouble applying their game knowledge to real life situations.¹⁰

These summaries of research give evidence of the value of simulation-gaming as an instructional technique. More specifically, they reveal the nature and, to a degree, the uniqueness of the learning encouraged by simulation-gaming. This researcher concluded that simulation-gaming did possess a sufficient degree of educational soundness to warrant being the content area used in this model.

¹⁰"Researchers Probe Reactions to Simulation Games," Report on Education Research (Washington, D.C.: Capitol Publications Inc., January 19, 1972), p. 4.

Techniques and Philosophy

The instructional techniques and philosophy utilized in "A Model for Methods Instructors to Assess Instruction Related to Simulation Gaming" (Figure 1, p. 19) were reviewed to determine if they were educationally sound. Essentially, the researcher was attempting to ascertain if effective strategies were employed in presenting the potential subject matter. Philosophy and strategies that related to the model as a whole will be treated here. Then, as the component parts of the model are later considered, instructional techniques related to each specific aspect will be evaluated if appropriate.

The educational philosophy and teaching strategies that serve as a theoretical base for the model as a whole strongly relate to the thinking of Dewey, Piaget and Taba. That thinking will be explored here.

The basic educational philosophy of the model is that espoused by John Dewey in his publication Democracy and Education: " . . . the natural course of development . . . always sets out with situations which involve learning by doing."¹¹ In this model for instructing pre-service teachers in the skills of writing simulation-games the initial experience for the student, the "doing," is active participation in a simulation-game. The

¹¹John Dewey, Democracy and Education (New York: The Free Press, 1916), p. 184.

"learning" anticipated from this active participation is twofold. (1) Students are expected to develop a concept of the field of simulation gaming by participating.

This exposure during play to the component parts that make up a simulation-game starts the cognitive process of concept formation about those parts for the students.

(2) This common experience for the students and the instructor provides a mutual frame of reference, a referent for later instructional dialogue and learning.

Becoming aware of the general area and forming a concept of simulation-gaming is uniquely important because of the nature of the subject matter of the model, simulation-gaming. Yet it is difficult for students to formulate a precise definition. As Glazier explains:

One of the biggest current problems in the presentation of educational games to the educational community . . . is a semantic one: what to call them. The word "game" connotes frivolity, while "simulation" sounds deadly serious and mechanistic. The reader may have noticed that . . . we seem to use the two terms interchangeably. Perhaps a prize should be given to the brilliant person who can conceive a whole new lexicon for this growing field. We need easy-to-remember terms which are not already so overworked that they have picked up a myriad of connotations.¹²

There is literature that supports the proposition that actually playing a game may be the most appropriate way to teach the concept simulation-gaming because of

¹²Ray Glazier, How to Design Educational Games (Cambridge, Mass.: Abt Associates, Inc., 1969), p. 4.

its semantically confused nature. Dienes¹³ suggests an inherent relationship between a process and content. In substance, he states that we must not consider the possibility that there are ways which are objectively better or more efficient for acquiring a given concept because of the inherent nature of the concepts in question. It has, in fact, been shown that certain concepts are just not amenable to learning by certain forms of mental organization. Thus, playing or participating in an actual simulation-game would appear to be a reasonable way to initially teach the concept of simulation-gaming. This was a significant reason for the selection of this model for this study.

Both Piaget¹⁴ and Taba¹⁵ have maintained that intellectual development takes place through a hierarchical organization of the information-processing strategies and the symbolic representation of experience. At each sequential station the cognitive operations and structures

¹³Paul Dienes Zoltan, Concept Formation and Personality (Leicester, England: Leicester University Press, 1959), p. 10.

¹⁴Jean Piaget, The Origins of Intelligence in Children (New York: International Universities Press, Inc., 1952).

¹⁵Hilda Taba, Cooperative Research Project #2404, Office of Education, U.S. Department of Health, Education and Welfare (San Francisco, Calif.: San Francisco State College, 1966).

become increasingly abstract and complex. These stages are in a lawful sequence, each preceding stage being prerequisite for the next, and becoming, in turn, incorporated into the following stage. This continuous creation of an increasingly intricate structure of mental schemes (organization) is the product of interaction between the individual and the demands of his environment. Thus, cognitive operations can be viewed as products of the person's active effort to cope with his environment.

This interaction between an individual and his environment has been explored by Piaget,¹⁶ Taba¹⁷ and Flavell.¹⁸ The progressive complexity in this interaction consists of two complementary processes, i.e. assimilation and accommodation.

The assimilation process refers to the individual's cognitive encounters with his environment at which time he organizes the objects and events into his existing cognitive structure and invests them with the meaning prescribed by the system. Taba states that the the individual

. . . perceives each new phenomenon in terms of an existing conceptual framework and new phenomena have meaning only to the extent that they can be fitted

¹⁶Piaget, op. cit.

¹⁷Taba, op. cit.

¹⁸John H. Flavell, The Developmental Psychology of Jean Piaget (Princeton, N.J.: D. Van Nostrand Co., Inc., 1963).

into patterns of concepts and relationships that exist in his mind. Experience is molded into the existing system of concepts and their relationships.¹⁹

Taba further asserts that,

. . . in contrast accommodation is a process of adaptation to the variegated demands of the environment. This process occurs when the new experience does not fit the particular conceptual schema of the individual. He must, therefore, rebuild, extend, or otherwise alter his schema to meet the demands of a new reality. Such reorganization takes place only as the learner is induced to cope with phenomena that do not fit his current schema.²⁰

Piaget²¹ identifies the rotation of assimilation and accommodation as constituting the dynamics of change and growth of thought. This rotation of processes represents the coordination of thought patterns to one another and to external reality. Both assimilation and accommodation are manifest in each cognitive act and at any level. The relationship between the two varies according to the intellectual function that takes place.

Thus, it can be assumed that the nature of the instruction innate within the model determines the intellectual functioning substantially for the pre-service teacher exposed to the model. The model will

¹⁹Taba, op. cit., p. 11.

²⁰Ibid., p. 17.

²¹Piaget, op. cit.

be reviewed to determine if it relates in a favorable way with these recognized statements of educational philosophy.

In considering the educational philosophy and instruction techniques employed in the model, it would be helpful for one to bear in mind the following observations: (1) a knowledge of the field of simulation-games and their related parts is considered an essential pre-requisite to writing a simulation-game by most developers;²² (2) most pre-service teachers have had only limited contact with the field of simulation-games (demographic data obtained from the subjects on the opening day of the class support this statement); and (3) their experience identifying and analyzing the component parts of a simulation-game is even more restricted. Thus, concept development would appear to be an appropriate point at which to initiate instruction about simulation-games and their development. This model does begin at the concept development stage.

Implications of Research

The model does recognize that intellectual development (cognition) takes place through a hierarchical organization (focus of lessons simple to complex) of the information processing strategies (playing a simulation game . . .) and the symbolic representation of

²²Gordon, op. cit., p. 122.

experience (naming activities and component parts). The sequential stages (class activities) of the cognitive operation and structures (what are simulation games, their components and development) do become increasingly abstract and complex (development of concepts, to generalizations, to application of generalizations). And succeeding stages do become incorporated into the following stages in the model. For example, the concepts of what constitutes a simulation-game and what are actor-player resources are developed in the awareness experience of playing a simulation-game (Lesson I, Appendix A), the identification of terminology, characteristics and component parts (Lesson II, Appendix A) and the successful identification of component parts in another simulation-game (Lesson III, Appendix A).

These fully developed concepts, i.e. what is a simulation-game and what are actor-player resources, are then utilized or incorporated into the next cognitive stage, that of forming generalizations. Specifically in the activity of considering points and processes in writing simulation games (Lesson IV, Appendix A), consideration is given to the relationship between concepts related to simulation-games. Student awareness of these concepts works on the premise that generalizations can be drawn as relationships become evident to the student. The model does not preclude that students have

already made generalizations in the earlier lessons; it does, however, make specific provisions for this cognitive activity at this time.

To continue the example illustrating the sequential nature of the cognitive process encouraged by the model, let us assume that the generalization, "Simulation-games have player-actor resources as an intricate part of their make up," was formulated by the student in Lesson IV. The student is provided opportunity to make application of this generalization in his initial attempts to write a simulation-game in Lesson V, Appendix A. This is an activity designed to provide support, clarification and additional input for the assigned task of writing a simulation-game.

This continuous creation of increasingly intricate constructs of mental schemas (concepts, generalizations and application of generalizations) is the product of interaction between the student and the demands of his environment (classroom activity and instructor). Hence, a student's completed simulation-game can, to a degree, be considered the physical manifestation of the cognitive operation.

In addition to having sequential developmental stages, Piaget²³ states that the cognitive process involves a dual set of adaptations. These complimentary

²³Piaget, op. cit.

processes are called assimilation and accommodation, and as alternating activities appear in the classroom as the intake of information and organization of that information in a new system. Furthermore, Taba²⁴ postulates that a teaching strategy that encouraged productive thinking would not only make provisions for but would attempt to appropriately pace assimilation and accommodation activities. This consideration is evidenced in the model.

In this model for teaching what a simulation-game is the initiating experience of playing a simulation-game would have the student cognitively attempting to determine in what ways this play is like earlier experiences he had had (assimilation), and also what new demand this play makes on him (accommodation). A condition of antagonism of disequilibrium between assimilation and accommodation would prevail. Later the student would proceed into the talk down or debriefing stage of the simulation-game which has two aspects treating both the subject content of the game and the teaching techniques (see Lesson I, Appendix A). Here the student's disequilibrium about what is a simulation-game would resolve into equilibrium. His assimilation and accommodation would have come into a balance then, indicative of a level of mature thought about what a simulation-game

²⁴Taba, op. cit.

is, a demand of his classroom environment. This process of providing situations that create disequilibrium and encourage equilibrium for the student is repeatedly structured into the model.

The educational philosophy and related instructional techniques employed in "A Model for Methods Instructors to Assess Instruction Related to Simulation Gaming" were reviewed in terms of educational soundness, that is, a test was made by this researcher to determine if the model contained activities that (1) encouraged and maximized learning and (2) held acceptance by professional educators as ascertained by a review of research literature. The model did meet these criteria to a favorable degree.

Comprehensiveness

The model met the researcher's criterion for being comprehensive, that is, it related favorably to the objectives of providing instruction about (1) the nature of simulation games, (2) their component parts, (3) their development and (4) evaluation about this instruction for the instructor.

Focus on instruction about the nature of simulation-games, both cognitive and affective, was provided by the actual playing, reading and critical review of exemplary samples of games, simulations and

simulation-games (see Lessons I and II, Appendix A)--exemplary in the sense that the samples studied manifested the characteristics of the respective nomenclatures as determined by Lewis and Wentworth.²⁵ Fletcher, Koeller and Martin's²⁶ report on the favorable empirical classroom testing of "Caribou Hunting at a Crossing Place"²⁷ and its analytic construction supports its inclusion in the model where it contributes to both the nature of simulation-games and the component parts facet.

Component parts of simulation-games were discussed in the model (see Lessons II and III, Appendix A). The identification of what constitutes a simulation-game in the model was compared and contrasted to an analysis done by Lewis and Wentworth,²⁸ Gordon²⁹ and Nesbitt³⁰

²⁵Lewis and Wentworth, op. cit., p. 2.

²⁶Jerry L. Fletcher, Donald A. Koeller, and David S. Martin, "The Caribou Hunting Games," in Simulation and Gaming in Social Science, ed. by Michael Inbar and Clarice S. Stoel (New York: The Free Press, 1972), pp. 159-72.

²⁷Available from Curriculum Development Associates, Inc., 1211 Connecticut Ave. N.W. Washington, D.C.

²⁸Lewis and Wentworth, op. cit., p. 2.

²⁹Gordon, op. cit., pp. 123-47.

³⁰William A. Nesbitt, Simulation Games for the Social Studies Classroom (New York: The Foreign Policy Association, 1968), pp. 8-14.

to determine the adequacy of the model's coverage. The evaluation determined the coverage to be inclusive and accurate.

Effectively meeting each of the two preceding objectives contributes significantly to the third, the development of a simulation-game. Cognizance of the nature of a simulation-game and its component parts is evidenced in the model, and specific consideration of simulation-games development is provided (see Lessons IV, V and VI). This facet of the model was inspected to ascertain if it was in keeping with the thinking of recognized developers of simulation-games.

The processes for writing non-computer assisted simulation-games outlined by Gordon,³¹ Nesbitt³² and Glazier³³ were reviewed to determine if conditions presented in the model related favorably. The study revealed that the processes outlined by the authorities were not synonymous. The facet of the model dealing with the development of simulation-games was, however, inclusive to the point of covering all crucial issues presented by the authorities in the field.

³¹Gordon, op. cit.

³²Nesbitt, op. cit.

³³Glazier, op. cit., pp. 5-14.

The format of the six lesson plans mentioned above (see Appendix A) embraces a recognized planning style³⁴ and provides for appropriate and clear statements of objectives, prerequisites (entry behavior), setting (physical environment), teaching strategies, approximate time required for each lesson and evaluation of the instruction session. There is a close correlation between these elements, i.e. objectives relate to teaching strategies and evaluation.

The model does provide for a complete and germane evaluation of instruction for the instructor. The rationale is provided by Ralph Tyler: "We have not recently reviewed our theory and practice in educational evaluation to assure ourselves that they are in harmony with the basic assumptions on which current educational programs are operating." He further states that,

We are still so obsessed with the ranking of individuals on the basis of scores that we have not developed adequately the tools and procedures required. Theory and practice need to be re-examined in terms of present conditions and opportunities.³⁵

³⁴Planning Modules, Elementary Education Department, Michigan State University, East Lansing, Michigan, unpublished, 1971.

³⁵Ralph Tyler, "Changing Concept of Educational Evaluation," in Perspectives of Curriculum Evaluation, ed. by Ralph Tyler, Robert Gagne, and Michael Scriven (New York: Rand McNally Education Series, 1967), pp. 12-15.

This model attempts to provide an assessment of instruction for instructors more nearly related to the nature of the instruction and, perhaps, more thorough than assessments made in the past.

Often in the past an instructor's evaluation of his instruction about simulation-games consisted of (1) a review of his grade distribution on the completion of a unit and (2) the verbal feedback garnered from students about the instructor's comments on the written product, but more often related to the nature of grades awarded. This study does not attempt to judge the relative merits of that technique. The model does incorporate the technique, thus assuring the instructor that he will get no less feedback than he was formerly provided (see Step H, Figure 1, p. 19). This provision is important, in the opinion of the researcher, because the students may or may not be able to perform Step I in the model of the student-produced simulation-game (Figure 1, p. 19) which consists of the student's classroom tryout and evaluation by the student and supervising classroom teacher. Not being able to complete the classroom tryout may not reflect on the quality or quantity of instruction about simulation-games, but may reflect the student's attitude toward the actual classroom teaching experience.

Thus, if a student cannot move beyond Step H in the model, the instructor cannot assume that his instruction about simulation-gaming was inadequate or inappropriate. By the same token, if the student can successfully complete Step I of the model, the instructor cannot assume that it was due to his adequate and appropriate instruction.

In a sense, each time an instructor applies this model (Figure 1 and Appendix A and B) he is running case study research on himself. The instructor should bear in mind the potential limitation of the case study technique cited earlier. Simply because some event precedes another (six identified lesson plans were taught, Appendix A) is no assurance that it is the cause of the either satisfactory completion or incompleteness of Step I. A cause and effect relationship cannot be postulated from utilization of the case study technique;³⁶ additional investigation would be necessary.

What the model does not do has been identified. The following is a statement of what the model does. Administering the model, i.e. teaching the six identified lesson plans (Appendix A), evaluating the student produced simulation-games (Step H, Figure 1), successful or unsuccessful completion of the classroom tryout and evaluation by the student and classroom teacher

³⁶Sax, op. cit.

(Step I, Figure 1) and a critical review of the ratings generated or not generated by Step I (Step J, Figure 1) constitute the application of the model. From such an application the instructor may be provided with new insights about his instruction, i.e. some definitions appear to be confusing. He may determine that it is necessary to modify a pre-existing condition, i.e. entry behavior initially must be more uniform for the model to be effective. Or he may find that there is a gap in knowledge, i.e. the kind of learning derived from the instructional technique of simulation-gaming is not clearly enough defined at this time to create appropriate instructional strategies about it. Though application of the model does not reveal a direct cause and effect relationship, it does originate knowledge about the instructor's instruction to a degree to be considered comprehensive in the area of evaluation by the researcher.

Operational Potential

The model is a theoretical construct with these physical components: (1) lesson plans (Appendix A) and (2) an evaluation instrument (Appendix B). A careful examination of the model was made to determine what conditions were necessary to make the model operational, allowing for the analysis required in the stated purpose of this study.

The following annotated list indicates the implementation procedure necessary to make the model classroom operational:

1. A teaching methods instructor of pre-service teachers. One who (a) includes a unit on simulation gaming in his course, (b) is willing to take the related in-service, (c) is willing to be observed, (d) is willing to be evaluated and (e) is interested in assessing his instruction.
2. A class of approximately thirty pre-service teachers enrolled in a teaching methods class. The simulation-game played in the model determines to a degree the size of the class needed.
3. A minimum of three exemplary simulation games, one simulation and one game with the characteristics identified by Lewis and Wentworth.³⁷
4. One college classroom with movable furniture large enough in size to accommodate the class of thirty students. The movable furniture (tables and chairs) contributes to effective simulation game play, display of samples, and appropriate seating arrangement for other instructional purposes. Environmental

³⁷Lewis and Wentworth, op. cit., p. 2.

conditions, i.e. light, heat and ventilation, favorable to learning should prevail.

5. Elementary classrooms complete with students, teachers and a conducive learning environment for the pre-service student tryouts.
6. An overhead projector, screen, filmstrip project and record player to implement instruction and to demonstrate exemplary simulation games.

Reflection on the conditions necessary to implement the model were made and its implementation appeared feasible. The researcher therefore deemed the model operational.

Observability

Along with McAshan's indication about the case study approach, "various techniques of direct observation are generally essential to this type of study,"³⁸ the researcher inspected the model to ascertain if direct observation techniques were amenable. The researcher conducted direct observations in the college classroom of students writing their simulation-games and the tryouts of the simulation-games in elementary classrooms was possible. It was resolved that all college classroom instructional sessions could be tape-recorded for later

³⁸Hildreth Hoke McAshan, Elements of Educational Research (New York: McGraw Hill Book Company, Inc., 1963), p. 21.

researcher review, and that instruments (see Appendices C, D, E, F and G) could be constructed to implement these direct observations.

This inspection revealed that many of the activities involved in the application of the model are highly visible. For example, playing a simulation-game is often characterized by an increased decibel count and active movement in the classroom where a simulation-game is being played.³⁹ Physical examination of sample simulation-games and the actual classroom tryout are other examples of highly visible activities incorporated in the model.

The researcher concluded that the model possessed activities that would be visible, thus observable, a necessary condition for application of the case study research technique.

Applicability

Applicability or capability of being applied was a feature of the model also explored by the researcher. An increased interest in and related degree of demand for teaching about simulation-gaming was discussed in Chapter I of this study. The content of the simulation-games employed in the model dealt with the social studies. A review of the model found that the educational

³⁹Gordon, op. cit., p. 39.

philosophy and related teaching techniques do not preclude its being used with other subject areas such as mathematics and science.

The model gives evidence that it was not constructed for computer related simulation-game instruction, i.e. sample simulation-games do not employ computers in their playing and computer activities are not indicated in the component parts facet or in points and processes of the development of simulation-games (see Appendix A). This absence of potential computer employment may reduce the appeal of the model to some teaching methods instructors. But, it was the opinion of the researcher that this lack of a computer orientation would not be a serious short-coming in the training of elementary pre-service teachers because relatively few elementary schools have access to computers at this time. The researcher determined the model met the criterion of applicability.

Availability

Availability was considered in two different respects. One was that the model was physically accessible to the researcher because he had authored it. The other consideration was suggested by Sax,⁴⁰ that the case study technique is undertaken because of convenience

⁴⁰Sax, op. cit., p. 291.

(availability of model) rather than for yielding or testing hypotheses. Based on a review of the advantages of the model studied above--educational soundness, comprehensiveness, operational potential, observability and applicability--the potential to draw hypotheses appeared great enough to warrant the study. Thus, availability as a resource for utilization in the study was considered favorably by the researcher.

Disadvantages

The model was reviewed by the researcher to ascertain if any disadvantages were discernible. The study revealed that there were several potential disadvantages.

Too Time Consuming

An investigation of the model determined that seven class periods (duration not indicated) would be utilized in the college classroom instructional facet. This constitutes the application of the six identified lesson plans (Appendix A).

For an institution on the quarter system with classes meeting bi-weekly for ten weeks, or twenty times per quarter, this application involves a commitment of nearly one-third of the instructor-student classroom contact time. For an institution on the semester system, on the other hand, the application approaches one-sixth of the instructor-student classroom contact time. The

duration of the class period would not be of significance. A study of the lesson plans indicates that beyond the first lesson of two periods duration (playing of a simulation-game) the lessons do not lend themselves to grouping. This is due to the nature of the teaching strategies employed in the lesson plans. During the time interval between class periods the student is expected to process theory input via some kind of action, i.e. select an issue or process or interaction with something and analyze a simulation-game to determine component parts.

Consideration will not be given to the amount of time required by the instructor to make the lesson plans operational in the classroom. Any classroom presentation by the instructor would require preparation, i.e. researching lecture notes and ordering audio visuals.

There is no empirical data available regarding the time input of the application of this model and the output in units of learning. One of the goals of this study is to generate hypotheses that may be empirically tested perhaps yielding this useful data. The consideration of classroom time invested versus learning about the instructional technique of simulation-gaming is a subjective decision at this time.

Over-Simplified Writing Technique

Over-simplification of the writing technique was a possible disadvantage of the model, as the literature

did not reveal an agreed-upon basic model. There is no empirically tested model of sufficient specificity nor, as indicated previously, is there any empirical data available about the model used in this study. The study was designed expressly to test the model.

An evaluation of "A Model for Methods Instructors to Assess Instruction Related to Simulation Gaming" was completed by the researcher. Consideration was given to the identified advantages of (1) educational soundness of both subject content (simulation-gaming) and instructional technique, (2) comprehensiveness, (3) operational potential, (4) potential observability, (5) possible applicability and (6) availability. The perceived disadvantages (1) too time consuming and (2) over-simplified writing technique were also reviewed. On accomplishing this appraisal, the researcher concluded the model would be utilized in this study.

Implementation

The researcher earlier in the chapter identified and deemed feasible the conditions necessary to make the model operational. How each of these implementations were made for this study will now be presented.

The Instructor

The implementation of the model required the identification of a teaching methods instructor of

pre-service teachers. For the instructor to further meet the following criteria, it would be necessary for him to: (1) include a unit on simulation-gaming in his teaching methods course, (2) undertake the in-service related to the model, (3) be observed, (4) be evaluated and (5) be interested in assessing his instruction to meet the requirements for implementation of the model.

Such an instructor was recruited from among the instructional staff of the College of Education, Michigan State University, who met the criteria identified above. The individual holds the degree of Doctor of Philosophy and was awarded the rank of full professor. He is an experienced methods teacher with above average knowledge in the area of simulation gaming. The instructor taught a section of Education 325D, Teaching of Social Studies in Elementary Grades, winter quarter 1971-72. The individual was willing to include a unit on the area of simulation games and their development and was interested in assessing his instruction of the topic. Further cooperation was granted by his willingness to (1) receive initial instruction about the model, (2) be observed while teaching the model and (3) be evaluated. The researcher was able, then, to implement the instructor aspect of the model operationally.

In-service training about "A Model for Methods Instructors to Assess Instruction Related to Simulation

Gaming" was provided the identified instructor by the researcher. This training consisted of the following: (1) the researcher provided the instructor with a copy of the model, (2) the instructor studied the model, (3) the researcher responded to reactions and inquiries the instructor had about the model and actual games, simulations and simulation games to be used. This interaction took place in the instructor's office in Erickson Hall, Michigan State University in December, 1971. In the opinion of the researcher, the instructor completed the in-service to a degree that would make application of the model possible.

Several measures about the instructor were taken by the researcher. The measures consisted of pre- and post-application of the lesson plans (see Appendix A), opinion interviews and an interview at the conclusion of the model (see Step J, Figure 1). The pre-application interview took place in January, 1972, and the post application recording in February, 1972. Both sessions were held in the Faculty Lounge, Erickson Hall. The conclusion of model interview took place April, 1972, in the instructor's office.

Observations of the instructor in class were made both prior to and during the application of the model. Every session of the class prior to the application of the model was attended by the researcher to

determine (1) the nature of instruction prior to the simulation game unit, (2) what if any reference was made to the area of simulation gaming and (3) the instructional climate before the simulation game unit. The interviewees informed the researcher that his physical presence starting with the first class session reduced the effect of his presence during the application of the model. Observations of all class sessions during the application of the model were made to determine (1) if the model could be identified and (2) the nature of the classroom climate.

These measures and observations of the instructor will contribute to the analysis of the application of the model, assist in drawing implications and encourage the generation of hypotheses for future research by the researcher.

Pre-Service Teachers

Another feature of putting the model into effect was having access to a teaching methods class of approximately thirty pre-service teachers. The minimum size of the class to which the model can be applied is essentially determined by the nature of the simulation game played in the initial lesson (see Appendix A).

Two statements can be made about the nature of the group. First, the model is designed for the target

population of pre-service teachers. And secondly, the application of the model is not predicated on any degree of previous experience with simulation games.

The stated entry behavior for the first lesson is "Upper elementary reading skills and normal motor skills dexterity" (see Lesson I, Appendix A). This entry behavior relates directly to the nature of the simulation game played in Lesson I. The entry behavior of the class utilized in the study was ascertained by their being able or unable to read and complete the researcher's demographic instrument (see Appendix H). The students were able to meet the requirements of the identified entry behavior.

The researcher determined that the class Education 325D, Teaching of Social Science in Elementary Grades, did meet these criteria, that is, (1) it was a teaching methods class, (2) the enrollees were pre-service teachers and (3) the class size allowed was set at thirty-five. This class would thus meet the requirements necessary for the application of the model.

Student Subjects

Another aspect considered in this study was the selection of student subjects. Pupils were observed (1) as they responded to the college instructor when he taught the model, (2) as they attempted to write a simulation-game and (3) as they taught their developed

simulations in an actual classroom situation. The students' as well as the supervising classroom teacher's evaluations of this teaching situation constituted the crucial feedback to the college instructor regarding the model and his application of the model.

The following criteria for identifying Education 325D, Teaching of Social Studies in Elementary Grades student subjects who were to be followed with the case study techniques were determined:

- (1) Concurrently enrolled in the course Education 321A, Common Elements of Teaching to allow for the classroom trial of the written product;
- (2) Willingness to participate in the case study;
- (3) Interested in working in the upper elementary grades where simulation-gaming was assumed to be an appropriate instructional technique.

Possible attrition and the mechanics of physical observation were considered in determining the number of student subjects to be followed by the case study technique. It was assumed that three would be a reasonable risk number and would provide adequate research data for the study.

Initial elicited demographic data contributed to the selection of the specific three student subjects. An instrument (see Appendix H) was administered at the

opening of the methods class to determine data germane to their participation in the study. Data obtained from the instrument and the rationale for their inclusion were:

(1) Campus address (living relatively close to campus would facilitate the case study technique especially during the simulation games writing stage);

(2) Overall approximate grade point (sought as evidence of academic ability);

(3) Number of hours carried this quarter
Number of hours employed this quarter (indicative of relative availability of student subjects to participate in the study);

(4) Approximate number of hours completed in the following social science disciplines:

Anthropology ____ Economics ____ Geography ____
History ____ Sociology ____ Political Science ____
Psychology ____

(The researcher assumed that students with a comprehensive background in the social sciences could better write social science oriented simulation games than students with a limited background in these areas);

(5) Name (The researcher deemed one student subject must be male because the review of research

literature indicated that performance in simulation games varies by sex.

In addition, the following questions were asked to obtain pertinent data:

1. What grade level are you most interested in teaching _____
Have you participated in simulation and/or educational games? Yes ____ No ____
If yes, please list their titles and indicate the circumstances under which you participated in each simulation and/or game (use back if necessary) (Revealed entry behavior for the study);
2. Aside from your level of knowledge, how would you rate your interest level in simulation?
High ____ Medium ____ Low ____ None ____
(It was assumed that a high or medium level of interest in simulation gaming might contribute to a subjects success in writing a simulation game);
3. How would you rate your interest in creative writing? Please place a check on the line below that indicates your level of interest.
High ____ Medium ____ Low ____ None ____
(The researcher assumed that there might be a positive relation between how a student subject

felt about creative writing and their success in developing simulation games);

4. Given what you know of your own abilities (SAT Scores and GP) in the Quantitative and Verbal Areas how would you rate yourself?

Quantitative Skills High ____ Medium ____ Low ____

Verbal Skills High ____ Medium ____ Low ____

(The researcher assumed that a positive relationship in these areas and skill in writing simulation games might exist).

All of the above listed criteria were considered in selecting student subjects for participation in the study, i.e. (1) attending classes where the model is being taught, (2) attempting to complete the assignment of writing a simulation game, (3) attempting to field test their product in an actual classroom and (4) evaluating the tryout as a feedback for the college instructor.

Student Subject Selection

The instructor administered the demographic instrument (see Appendix F) on the first day of class. No comment was made about the study to the students at that time in an attempt to obtain more objective responses. Each student present completed an instrument.

The instructor then turned over the completed instruments to the researcher who compiled the data and

made an analysis and made the selection of the student subjects. Thirty-four completed instruments were received, twenty-eight from females and six from males. The researcher reviewed these instruments in terms of the criteria stated above. He then identified three individuals, two females and one male, who most nearly met the criteria.

Following the third class meeting the researcher met with the three identified student subjects and invited them to participate in the study. The advantages of participation were identified for the student: (1) gain more feedback on your simulation game, (2) garner experience with the case study research technique, (3) develop skill in evaluation and (4) make a significant contribution to research. Students were made aware that in addition to their regular class assignment this research participation entailed allowing the researcher to (1) observe them while writing the assigned simulation game, (2) join them on several of their Education 321A, Common Elements of Teaching observations in an elementary building and (3) observe them as they taught their simulation games in these previously observed elementary classrooms.

All three students agreed to participate in the study during the first week of winter term, 1972. One week later the male subject transferred out of the class

to join a science class he felt he must have. Another male student was recruited to fill the vacancy but after a day of thought refused. Still another male was enlisted and he did accept. He did not meet the criteria of being enrolled in Education 321A, Common Elements of Teaching, the course that provided once a week full day observations in an elementary school. To compensate for this, opportunities to make observations prior to the classroom field test were made.

These classroom observations served a twofold purpose: They provided the pre-service teachers with opportunities to become acquainted with elementary pupils whom they would later face in the classroom try-outs, and allowed the elementary school pupils to become familiar with the pre-service teacher and the researcher in an attempt to create a more normal learning environment during the classroom tryout of the simulation games.

Thus, three interested and willing student subjects participated in the student component of the research design. They were observed as they (1) responded to the college instructor of the elementary social studies methods course, (2) as they wrote their simulation-games and (3) as they taught their developed simulation-game in an actual classroom situation.

Exemplary Samples

Implementation of the model identified earlier in this chapter requires a minimum of three simulation-games, one simulation and one game, all of an exemplary nature. The distinguishing characteristics of the samples as identified by Lewis and Wentworth are listed below:

A learning game is a model of student interaction which usually involves a "winner" and the winner is a person who has learned enough content to win the game. . . . [Blacks and Whites] The game essentially provides a competitive setting for the learning of subject matter content.

Simulations are an attempt to model a portion of reality in an artificial situation. They reproduce the social, economic, or political processes of particular systems of social interaction. Students assume roles in the system and try to understand how the system operates by participating in it as a member, not as an observer [1787 A Simulation Game].

A simulation-game is a combination of these models which tries to use the role-playing, modeling features of simulation for learning how a system operates and the competitive nature of games to encourage student motivation [Recycling Resources].⁴¹

The researcher was able to secure three exemplary simulation games, one simulation and one game that met these recognized characteristics. In this manner, provisions for sample components of games, simulations and simulation games for play and examination by the students as stated in the model were met.

⁴¹Lewis and Wentworth, op. cit.; Blacks and Whites, The Headbox, Educational Products Division, P.O. Box 4762, Clinton, Iowa, 52732; 1787 A Simulation Game (Hartsdale, N.Y.: Alcott Forward, Inc.); Recycling Resources (New York: Continental Can Company, 633 3rd Ave., 10017).

College Instructional Classroom

It was determined earlier that a college classroom with movable furniture large enough to accommodate a class of approximately thirty pre-service teachers would be needed to carry out the instructional aspect of the model (see Appendix A). Favorable learning environmental conditions, i.e. light, heat and ventilation, should prevail.

A classroom at Michigan State University, assigned the identified instructor, met these conditions. All six lesson plans (see Appendix A) of the model were presented here at the time indicated in the official catalog of Michigan State University. Thus, the college instructional site condition was met.

Teaching Tryout Site

Elementary classrooms complete with students, teachers and a conducive learning environment were necessary for the pre-service teacher classroom tryouts (Step I, Figure 1). The awareness and cooperation of the local school administration were necessary prerequisites to making the research study operational. A location geographically close to the students' residence would facilitate their observations of the elementary students and their classroom tryouts.

The East Lansing, Michigan school administration had expressed a willingness to cooperate in research.

School officials were approached in an attempt to identify a school or schools which met the criteria listed above.

Overtures of the researcher to school officials were successful. It was determined that Pinecrest School, East Lansing, Michigan, would be the site of the pre-service teachers' observations and the classroom tryouts of their simulation games because of the willingness of teachers in this building to cooperate with this study. All student classroom observations and simulation-game tryouts were held in this school facility. This provided for the implementation of the elementary school facility for the classroom tryouts and related evaluations by both the student and supervising teacher. These evaluations, in turn, provide the data for the instructor in his assessment of his instruction about simulation games (Step V, Figure 1).

The implementation of "A Model for Methods Instructors to Assess Instruction Related to Simulation Gaming" was accomplished in the manner identified and outlined above. Consideration was given to the following facets: a college instructor, a student class and select subjects, exemplary simulation games, a college classroom, and a field test site. The model was operational.

Summary

This chapter presented the research design of the study as well as a theoretical evaluation of the model

employed in the study. The case study research technique was discussed.

The researcher made observations of (1) instruction prior to the application of the model in the college classroom, (2) the college classroom presentation of the model, (3) three students working on the assignment of writing a simulation game and (4) the elementary classroom tryout of each student of his simulation game. These observations were systematically and anecdotally recorded via written notes. All sessions of the college classroom application of the model were tape-recorded for review and analysis.

Instruments were designed and used by the researcher in an attempt to assess student subjects' attitudes and reactions before and after they wrote their simulation game and used it in classrooms and to ascertain student subjects' anxiety in retrospect at the completion of the model.

Information collected from the observations, recordings and instruments was classified and tabulated. These data were then systematically reviewed. A critical analysis was made to determine findings, implications and hypotheses.

CHAPTER III

RESEARCH DATA

This section will report the research data resulting from the observations and application of instruments treated in the preceding chapter. Data were gleaned from these sources:

- (1) Classroom Observations
- (2) Observations of students' writing
- (3) Pre- and post-writing attitude instruments
- (4) Observations of teaching tryouts
- (5) Student and supervising teacher evaluations
- (6) Pre- and post-teaching tryout attitude instruments
- (7) Retrospect attitude instrument

These data will be presented below in chronological order.

Observations Prior to Application

A compendium follows of direct observations made by the researcher of the Education 325D, Teaching of Social Studies in Elementary Grades class as it met in Room 130, Erickson Hall, Michigan State University, Winter Quarter 1971-72.¹ These observations, which dealt with

¹Specifically, this included all Monday, Wednesday and Friday, January 5 through January 14, inclusively.

the classroom situation prior to the application of the model, were made for the following reasons: (1) to determine what, if any, references were made to the area of simulation-games and (2) to assist the researcher in ascertaining the nature of the class. These data assisted in the analysis of the application of the model. Moreover, the physical presence of the researcher did facilitate the recruitment of the student subjects. The instructor, the class, the three student subjects and the curriculum were treated.

Instructor

Observations were made by the researcher of the instructor as he regularly met the scheduled class. A professional interest in his students was manifested by the instructor. This was evidenced by his distributing a comprehensive syllabus of the course, seeking demographic data about the students (independent of research demographic data) and repeatedly asking the students if there were questions about the course and arranging office hours to accommodate students. Reading assignments in the textbooks² were made with the goal in mind

²Jonathon C. McLendon, William W. Joyce, and John R. Lee, eds., Readings on Elementary Social Studies: Emerging Changes (Boston: Allyn and Bacon, Inc., 1970); James A. Banks and William W. Joyce, eds., Teaching Social Studies to Culturally Different Children (Reading, Mass.: Addison-Wesley, 1971).

of providing the students opportunity to pace their homework. The instructor also displayed an experienced classroom presence. He spoke in an audible manner and exhibited no distracting behavioral mannerisms. Appropriate and adequate use was made of the chalkboard.

The instructor introduced the researcher as a graduate student who "would be spending some time with the group." No reference was made of the research study. And no mention was made of simulation-gaming other than in a brief oral review of the course syllabus. The instructor did utilize the researcher in distributing handouts to the students in an attempt to involve the researcher in the classroom stream of activities. On three different occasions the instructor referred to previous contacts the researcher had had with leaders in the field of education, i.e. Brookover, Senesh and Taba. These references did not relate to the research study and did not appear to skew the classroom atmosphere.

During an interview with the instructor in January, 1972, prior to the application of the model, the researcher attempted to determine what problems, if any, the instructor anticipated in the application of the model. He indicated two: (1) that application of the model would be too time-consuming and (2) that there would not be enough students in the class to make the play of the simulation-game operational.

The Class

The class size and sexual composition on the opening day of class was representative of most Michigan State University elementary methods classes. There were thirty-four students present, twenty-eight females and six males. Three additional students appeared at the second meeting of the class. And later two students withdrew. Thus, the group leveled off at the recommended thirty-five students.

The personality of the class group was typical in nature. No highly divergent personalities were identified by the researcher. Class members started the course with a quiet and self-conscious attitude, becoming more out-going as they grew to know better the instructor and their peers. On several occasions the instructor gently asked several students to speak in a louder tone. The number of inquiries and responses volunteered by students tended to increase as the class progressed. Several student leaders did evolve, but the student subjects were not among that number. There appeared to be nothing unique about the class that would impede the application of the model.

Student Subjects

The three student subjects who were identified by the process indicated in the preceding chapter were also observed. From this point on, the individual

subjects shall be represented in the compendium by the letters A, B and C. They were assigned alphabetically according to their last names. Subject A, a white male was not concurrently enrolled in Education 321A, Common Elements of Teaching. Subjects B and C were white females enrolled in the observation class.

During the period prior to the application of the model, Subjects A and B did not miss any class sessions. Subject C was not present for one session and was late arriving on another occasion. While present, student subjects were attentive, exhibiting no unusual behavior. Subjects A and B both orally volunteered one response to instructor questions during this period of time, while Subject C remained quiet. Also, during this period the researcher observed manifestations of open, cooperative attitudes, i.e. following along in the syllabus and writing down assignments. Nothing was exhibited among the student subjects that would appear to hinder the application of the model.

Curriculum

The curriculum of the course, Education 325D Teaching of Social Science in Elementary Grades, was identified prior to the application of the model. Essentially, this dealt with the nature of the social sciences and social studies, definitions of the terms, concept and generalization and an introduction to the

nature and purpose of cognitive and affective domains of learning. No consideration was given either in class or in assigned readings to the area of simulation-games other than a casual reference during the introduction to the course (leafing through syllabus). This instruction was related to the identification of the disciplines, and the development of concepts and generalizations seemed to the researcher to be appropriate activities prior to the application of the model.

Observations During Application

The researcher found that no mention was made of simulation-games other than a casual reference to the topic in reviewing the syllabus. It was further determined that the nature of the class appeared favorable to the application of the model.

The following is a compendium of direct observations made by the researcher during the application of "A Model for Methods Instructors to Assess Instruction Related to Simulation-Gaming" in the course Education 325D Teaching of Social Studies in Elementary Grades. These observations took place during the period January 17 to February 9, 1972, at the scheduled time (9:10 - 10:00 Monday, Wednesday and Friday) and location (Room 130, Erickson Hall, Michigan State University).

The projected observation schedule (see Appendix I) of the application of the model, Monday, January 17 through

Friday, February 4 inclusively was not strictly adhered to for several reasons: (1) the instructor was called out of town resulting in the class not meeting one day and (2) additional time was allowed for completion of the writing assignment.

Observations of the application of the model in this course will be presented chronologically, day by day. The instructor, the entire class, the student subjects, the classroom and the application of the model will be reported when appropriate.

January 17 was the first day of the application of the model involving the first of the six lesson plans (see Appendix A). Thirty-one students were present including the three student subjects. The physical environment of the room was conducive for learning to take place. The classroom furnishings, i.e. tables and chairs, were arranged in three clusters for initiating play of a simulation-game as prescribed in Lesson Plan I. The instructor followed the directions of the simulation-game as outlined and as reviewed in in-service provided earlier. Play progressed without incident until the close of the class period. The total class appeared actively involved in the activity.

Play of the simulation-game (Appendix A, Lesson Plan I) was resumed on January 19. Conditions similar to the preceding day of play prevailed. The three

student subjects were again actively involved with their peers. No unusual or distracting incidents occurred. The simulation-game progressed to the point of the debriefing involving the subject matter content of the simulation-game itself by the close of the period. Talk-down related to aspects of simulation-gaming as a teaching technique were carried over to the next class session.

The class opened January 19 with the continued application of Lesson Plan I, specifically debriefing regarding simulation-gaming as a teaching technique. The thirty-three methods students, including subjects, were able to respond to an acceptable degree, but it was evident that the time interval between actual play and discussion had taken its toll in accuracy of recall. The instructor did not write the perceived advantages and disadvantages on the chalkboard as directed in the guide.

After approximately fifteen minutes Lesson Plan II was initiated. The students were seated at tables in the form of a "U" facing the chalkboard as suggested. The exemplary samples of a game, simulation and simulation-game were distributed along the tables providing for possible tactile learning experiences. The pupil hand-out "A Glossary for Simulation Gaming" (Appendix A, Lesson Plan II) was distributed.

At this point the instructor introduced specific examples of how simulation-games are used outside the

field of Education, i.e. California oil spill and government planning in Israel. He then drew a diagram, a continuum on the board indicating degrees of openness and closeness in role play. This was well received by the students.

The model again became apparent as the group focused on the glossary. As the class terminated, the instructor indicated that there would be no class on Monday because he would be out of town.

A brief review of the simulation-game glossary, presented during the previous session, opened class activities on January 26 for twenty-nine students, including the three subjects. The specific analysis of a sample exemplary game, simulation and simulation-game, as outlined in Lesson Plan II (see Appendix A), was treated in a comprehensive manner by the instructor. The students responded orally with questions and responses but also by actively manually manipulating the various physical components of the sample simulation-games, i.e. dice, model city dump and chips. The students were seated about tables arranged in a "U" shape with the open end toward the chalkboard. Favorable learning environmental conditions prevailed.

The assignment of reading the handout "Caribou Hunting at a Crossing Place" for the next class session was made. Class ran seven minutes over time.

The fifth day into the model, January 28, found the twenty-nine-member student group, including the student subjects, seated in a semi-circle facing the instructor. The class opened with an exercise in probability dealing with dates of birth. Although not a part of the model, the exercise was used for the purpose of sensitizing the students to probabilistic vs deterministic aspects of simulation-games. This incident had a duration of approximately ten minutes.

Then the focus of the class shifted to the task that had been assigned as homework, i.e. analysis of "Caribou Hunting at a Crossing Point." The systematic analysis proceeded as outlined in "A Guide to Component Parts" keyed to this simulation-game (see Lesson Plan III, Appendix A). Both Subjects A and C responded once. This activity ran its natural course with some evidence that a small percentage of the students had not made the analysis of the simulation-game as requested. The researcher was unable to determine if the student subjects were among that group.

Upon completion of this review of the component Parts of simulation-games, attention was then focused on the issues and/or processes that had been the focus of the two simulation-games analyzed, i.e. "Labor-Management" and "Caribou Hunting at a Crossing Place." Concepts and Generalizations related to these issues and processes were

explored. This led to the homework assignment for the students of selecting an issue or process about which they might like to write a simulation-game. Criteria for the selection of an issue or process as outlined in the lesson plan were omitted by the instructor. He did ask the group to write out their issues and/or processes as the guide indicated. And prior to terminating the class, he did indicate that this assignment of writing a simulation-game was approximately one-fourth of the grade for the course. This was not a part of the lesson plan.

The instructor began class on January 31 by using the transparency, "Advantages and Disadvantages of Simulation-Gaming," as directed in Lesson Plan IV (see Appendix A). Again the class (thirty-two people present, including subjects) was seated in a semi-circle facing the instructor and screen. With favorable classroom environmental conditions prevailing, the instructor first treated the advantages of simulation-gaming as a teaching technique and then the disadvantages, using the earlier analyzed simulation-games as referents. He asked if there were any questions about the parameters of simulation-gaming. There were none.

The group then shifted its focus to a consideration of the significant interaction-oriented issues and/or processes that it had selected to possibly write a simulation-game about. The instructor asked for a

volunteer to orally describe what he had chosen as his issue and/or process. Subject C volunteered first, followed later by Subject A. Subject B did not speak. The high degree of interaction between instructor and student and among students (peer to peer) manifested in this class session was greater than any session since the initial lesson where a simulation-game was played. The instructor's role was significantly one of serving as a resource or "extender," calling on his store of experiences with simulation-games.

"A Guide to Writing Simulation-Games" and the "Assignment Sheet" (see Lesson Plan IV, Appendix A) were reviewed. And the transparency, "Points and Processes in Writing Simulation-Games," was utilized. The instructor announced that the assigned simulation-game would be due in ten days on February 9. A student asked if it was necessary to identify the respective component parts as they wrote their simulation-games. The instructor said, "Yes, remember how difficult it was for you to analyze 'Caribou Hunting'?" Spontaneously, the class verbally responded, "Yes."

The class met on February 2, but the model was not applied. The instructor said that he felt that this allowed students more time to develop the assigned simulation-games. The lesson presented dealt with examples of behavioral statements for the affective

domain. The researcher did not perceive that this content would have any negative impact on the application of the model. No mention was made of simulation-gaming. Subject C was absent.

On February 4, Lesson Plan V was initiated. Twenty-four pupils were present. Subject C was absent. Continued favorable classroom learning environmental conditions prevailed. During class criteria for the selection of an issue and/or process on which to focus a simulation-game were reviewed as prescribed in Lesson Plan V. Discussion was limited.

Attention then shifted to the transparency, "Points and Processes in Writing Simulation-Games" (see Lesson Plan IV, Appendix A), employed earlier. The instructor provided support, clarification and additional input as the class evidenced a need. When responding to the students, the instructor also drew on the class' experience in playing a simulation-game and in analyzing two simulation-games in an attempt to identify component parts, issues and processes for examples. He drew, too, on his own personal experiences with simulation-games.

The questions that the students asked seemed appropriate in the opinion of the researcher. No Subject asked a question. There was minimal interaction among the students (peer to peer). Instead, most dialogue centered on or involved four individuals. These people

had apparently given considerable thought to and had attempted the task of writing a simulation-game.

Lesson Plan V activity, responding to student questions about writing simulation-games, continued for approximately ten minutes at the opening of class on February 4. When student questions were exhausted, the class focus reverted back to the consideration of the affective domain undertaken on February 2. No other mention of simulation-gaming was made during this class. Thirty pupils were present including the subjects.

February 9 was the final day of the application of the model in the college classroom. Lesson Plan VI was taught to a class of twenty-eight people (one came very late). All three subjects were present.

The instructor orally (lesson plan states write them on chalkboard) explained the objectives for the day's activity. As he distributed the student handout, "Guide to Evaluating Simulation-Games" (Lesson Plan VI, Appendix A), he asked students to quickly read the item. The instructor, after an appropriate time interval, then asked if there were any questions. There were none.

Proceeding with the lesson plan, the instructor divided the group into pair-partners of similar interest, i.e. two future third-grade teachers. The leader explained that they were to (1) exchange simulation-games, (2) read the instrument all the way through, (3) re-read

the product while completing the evaluation sheet and (4) share their evaluations with their partners. The instructor then asked if anyone had any questions. A student asked, "How long do we have?" The response was, "We will see how long it takes. Just go ahead." There were no other questions.

Pair partners formed with minimal confusion, and evaluations took place with no distracting incidents. The instructor moved among the pairs of students making visual observations as well as an occasional verbal observation. For example, "If you find you have left something out, add it now." Students seemed engrossed. Interaction took place to a high degree. A sample was, "Why don't you list materials earlier?"

With about five minutes left in the period, the instructor suggested to the group that all simulation-games be returned to their owners along with the evaluation, if this had not already been done. He asked if anyone felt that he could improve upon his product by incorporating his partner's suggestions, taking additional time and turning his simulation-game in on Friday (the next class meeting)? Eight people responded that they thought that they could. He then asked the class if it felt that this peer evaluation activity was worth the time and effort. Orally, a preponderance of the class indicated that it had been. A student asked if it would

be possible to get a copy of everyone's simulation-game. The instructor indicated that that would be too expensive. But he suggested that a dittoed listing of the titles, a brief description and the author's name could be prepared allowing interested people to make direct contact with authors for a copy. (The instructor did follow through on this.) The simulation-games that were ready for the instructor's evaluation were then collected. On this constructive note the class was dismissed. Thus ended the college classroom aspect of the application of "A Model for Methods Instructors to Assess Instruction Related to Simulation-Gaming."

All members of the class were able to write simulation-games. The instructor scored these products using the criteria stated in the student handout, Assignment #4, Designing Simulation-Games (see Lesson IV, Appendix A). All three subjects scored in the top quartile of the grades of the class.

Findings Application of Model

The following are findings determined by the researcher's observations of the attempted application of six lesson plans (Appendix A) of the model. These findings relate to the model, the class, the student subjects and the instructor.

1. The model can be made classroom operational as determined by the above outline of activities.

2. The model is identifiable when in that classroom condition because it is visible.
3. The class was able to play a simulation-game as evidenced by performance.
4. The common experience of playing a simulation-game did serve as an introduction and later as a referent for both the instructor and the students. This was conspicuous by declamations and manuscripts.
5. The students were able to master the vocabulary of the domain of simulation-gaming to an acceptable degree as evidenced by their oral (questions and responses) and written responses (worksheets and finished product).
6. The students were able to perform the task of analyzing simulation-games to determine component parts and issues and/or processes as manifested by verbal interaction and by their written endeavors.
7. The students were able to give consideration to the processes involved in writing a simulation-game as demonstrated by their production of such an item.
8. The students were able to perform the activity of reading another individual's simulation-game,

evaluating it and providing feedback about the simulation-game to that person. This was evidenced by spoken comments as well as written responses to the "Guide to Evaluating Simulation-Games."

9. The instructor was able to acceptably master the model from his reading of it and the related in-service provided as demonstrated by his classroom performance. This included his verbal discourse and responding as well as his appropriate manual utilization of the chalkboard, audio visuals and samples.
10. The instructor orally provided input about simulation-gaming not included in the model, i.e. examples of actual simulation-game utilization outside the field of education and the probability exercise.

Observations of Student Writing

A compendium follows of direct observations made by the researcher of the three student subjects as they attempted to complete the assignment of writing a simulation-game. The observations are of representative periods of time devoted to this task by the pupils. The observations treat: the environment in which the writing took place, the subjects' responses, both verbal and

non-verbal, to the task, the sources which the subject utilized in the development of simulation-games and any extemporaneous forces that were manifest during the observation period. The subjects shall be treated in alphabetical order.

Subject A

Subject A was observed from 1:30 P.M. to 4:15 P.M. on February 3 as he worked at a table in the lobby of Erickson Hall. In the area were several other people (not in this class) working or lounging. There was light intermittent traffic of students and some faculty through the area. Heating and lighting were adequate. The general atmosphere appeared relatively peaceful, though varied activity was taking place.

Subject A had the semblance of an individual experiencing considerable anxiety. This was manifest by a high degree of cigarette smoking, frequent shifting about in his seat and shuffling of papers and books (one a college geography text, another a college economics text).

There was evidence that no clear-cut decision had been made on what issue or process would serve as the orientation or focus of the development. Leafing through the textbooks, of former college classes mentioned above, resulted in several false starts, i.e. analysis of Pittsburgh in international trade and a trading post in early Michigan. However, the economic interaction idea did

persist and was the theme of Subject A's final product, "Try It, You Will Like It" (see Appendix J). It was the model that obviously became more simplified as the thought process progressed.

There were several interruptions. First a girl acquaintance initiated conversation (not about simulation-gaming) and later a fellow extended a greeting and borrowed a cigarette. These seemed to be welcome diversions for the subject. Several questions evolved during the observation.

The subject (not enrolled in Education 321A) asked the researcher when he would field test his product. The researcher responded that it could be done at any time within the confines of the elementary school day. Later the subject asked the researcher how many children he would be working with. The researcher indicated that he could have as many or as few as his simulation-game called for, again within the confines of the school. The subject evidenced an interest in working with less than an entire class at one time.

Subject B

Subject B was observed from 7:08 P.M. until 8 : 47 P.M. in Room 289, McDonald Dormitory on February 6. Her roommate was present for approximately the first forty-five minutes of this observation, left the room for about five minutes, returning again for about twenty

minutes to depart once more and not return during the observation. The room was comfortably warm and well-lighted and the general atmosphere was one of rather busy involvement.

The subject gave the appearance of considerable composure as evidenced by her facial expressions and occasional remarks (not related to simulation-games) to her roommate. She worked seated at her desk with booklets from the Man: A Course of Study¹ social studies series for the elementary school and several pages of notes. The subject had become aware of the social studies curriculum material through her elementary school observations provided in Education 321A. It was obvious from her purposeful reading and writing that she had a process clearly in mind that was serving as the focus of her developmental task. Her efforts dealt with trying to determine aspects of modern-day Eskimo life style (not treated by MACOS) that could be incorporated into a board oriented game. This proved not to be a false start as evidenced by Subject B's finished product (see Appendix K).

The subject did not ask the researcher any questions during the course of the observation. She did answer the phone once during the session and took

¹Man: A Course of Study (Washington, D.C.: Curriculum Development Associates, Inc., 1211 Connecticut Ave., N.W., Washington, 1968).

down a note for her roommate. Finally, in conversation with the researcher at the close of the observation, the subject evidenced that she had in mind producing a board game somewhat similar to one she had played as a child. She did not now possess a copy, nor did she remember its title (dealt with characters Barbie and Ken) or publisher. Investigation by the researcher did not reveal the identity of this children's entertainment item.

Subject C

Subject C evidenced some reluctance at being observed during the writing stage of this study. She commented that her work schedule did not make observation convenient and that her boyfriend did not approve.

Nevertheless, the subject was observed in the lobby of Erickson Hall in the same area used by Subject A. The observation took place on February 3 from approximately 2:20 P.M. until 4:30 P.M. She worked at a table with another individual who was not in the class. There was considerable student and faculty traffic in the area. Lighting and the room temperature were of a satisfactory level for study.

As a part of her Education 321A class, the subject was attempting to extend an area of curriculum that the elementary class that she was observing was currently studying. She worked from copies of the Man: A Course

of Study,² student materials, several pages of notes and the handout "A Guide to Writing Simulation-Games" (see Lesson Plan V, Appendix A). Her endeavors dealt with a modification of role playing. This proved not to be a false start as determined by reviewing the subjects' final product (see Appendix L).

She worked in unemotional, methodical manner, smoking an occasional cigarette. Subject A happened to walk by and stopped to speak to both Subject C and the researcher. He asked Subject C if she was working on her simulation-game. She indicated affirmatively. He then asked how it was progressing and she responded favorably. After a brief pleasantry, Subject A departed and Subject C continued her endeavors.

Findings From Writing Observations

Listed below are some findings based on observations of student subjects as they attempted to write their simulation-games. These findings deal with the relationship between writing facility and (1) students' concept of the elementary school learner, (2) students' contact with social studies materials, (3) a student's experience prior to involvement with the model and (4) students' environmental conditions while writing.

²Man: A Course of Study, op. cit.

1. It appeared that subjects who had made regular direct observations of elementary school students had a better concept of the young learner than did the subject who had not had the observation experience. The better concept of the learner seemed to allow the writers to more quickly determine the nature and level of their simulation-game.
2. It appeared that subjects who had direct access to and could observe an existing social studies curriculum being taught could more quickly focus on an issue or process around which to center their simulation-game writing activity than did the subject who did not have the observation experience.
3. It appeared that subjects could write simulation-games under varied writing conditions.
4. It appeared that a subject could successfully draw from a childhood gaming experience (prior to application of the model) in developing a simulation-game.

Pre- and Post-Writing Assessments

The following figures represent data determined by the application of the Student Pre-Writing Assessment (see Appendix C) and the Student Post-Writing Assessment

(see Appendix D) to the three student subjects. The before (Figure 2) and after (Figure 3) measures are presented independently. Student subjects are treated alphabetically.

Pre-Writing Assessment

Figure 2 represents data determined by the application of the Student Pre-Writing Assessment. It was administered prior to the teaching of Lesson Plan IV (see Appendix A).

Pre-Writing Assessment Findings

The following are findings determined from the application of the Student Pre-Writing Assessment. They deal with the general area of anticipated problems and the amount of time students estimated it would take to complete the assignment of writing a simulation game.

1. All of the subjects anticipated at least one problem in writing the simulation-game. But problems were different for each subject.
2. All of the pre-service teachers perceived a common problem: writing a simulation-game on a level suitable for elementary pupils. (They had the option of writing for any grade level they wished.)

What problems, if any, do you anticipate in completing the assignment of writing a simulation-game?

- A. Trying to make the game simple enough for the kids to play and understand the purpose for playing it, but then again not to make it too simple.
- B. Narrowing down game topic
 Keeping it simple enough
 Devices for moving the game direction
 Writing fast, easy-to-understand directions
 Creating alternative moves for players
 Finding a finish for the game
 Varying the manipulation devices
- C. The only problems that I can see would be in creating a game that would be of interest to this group of 4th graders. Many are very immature and seem to pay little attention to what is going on. I think that after further discussion with the teachers in charge, I should be able to come up with some more concrete ideas.

Approximately how long do you think it will take you to complete this assignment?

- A. A couple weeks
- B. Making the game should take 2-3 hours, organizing and creating alternatives will be done in my spare time--just jotting down ideas as they come to me--I can't estimate how much time that will take.
- C. As soon as I formulate my ideas and am completely sure of what I'm doing, I doubt that it will take more than a couple of hours.

Figure 2.--Student Pre-Writing Assessment.

3. In the opinion of the researcher, all of the problems perceived by the subjects were legitimate.
4. All students were able to make an estimate of time required to develop a simulation-game, but these were not realistic.

Post-Writing Assessment

Figure 3 represents the data determined by the application of the Student Post-Writing Assessment. It was administered upon the completion of instruction of Lesson Plan VI (see Appendix A).

Post-Writing Assessment Findings

The following are findings determined from the application of the Student Post-Writing Assessment. They deal with students' feelings as to whether their anticipated problem had occurred, new concerns that evolved and reported perceptions of how long this developmental task took.

1. One student felt that his perceived problems in the developmental endeavor had not materialized, another did not mark the scale and the third indicated on the scale that her anticipated problems had occurred but in the remarks refuted the remark. The responses to this portion of the instrument are inconclusive.

Did the problems you anticipated in completing the assignment of writing a simulation-game materialize? Yes _____
 No X

- A. The kids were able to grasp the concepts. In other words, the game was not a problem to comprehend in terms of actually playing it.
 Yes X No _____
- B. The interaction rules seemed to work themselves out as I went along. I expected to have more difficulties.

I am really satisfied, even though it was much more time consuming than I expected, that my game covers all necessary aspects of a simulation-game. The evaluation sheet and outline was really a terrific help.

- Yes _____ No _____ (no indication)
- C. Once I had an idea that I could work with, I didn't have too much trouble. It did take a while to develop a workable idea, though.

What other unanticipated problems, if any, did you encounter? Explain:

- A. Name tags for each group should be present.
- B. Writing divergent debriefing questions
 The actual time for writing out each square of the game board, even though I knew the area I wanted to cover, took twice as long as I had expected.
 I really wish we could have reviewed our games with more people--I need new and creative ideas for different types of simulation games than just my own.
- C. The main problem was the fact that I wanted to keep revising the idea. When I'd get one part down and start on the next, I'd think of many more ideas that could be incorporated into the section just finished. I finally had to settle with most of my original ideas. This was true because of the time limit and because of the fact that the game would have become too involved.

How long did it take you to complete this assignment?

- A. Eighteen hours at least
- B. About 8 hours
- C. The entire game took about ten hours to complete and I'm sure that I could have spent ten more and still not have been satisfied completely.

Figure 3.--Student Post-Writing Assessment.

2. All pre-service teachers reported unanticipated problems. Two subjects reported typical problems related to timing needed to complete simulation-games.
3. Two of the three subjects indicated that this simulation-game development took over twice as long as they had anticipated. The response of the third subject was at variance. In the pre-assessment he had indicated it would take "a couple weeks," when only ten days were assigned for the task. Then, he reported that it had taken eighteen hours in the post-assessment. At any rate, this time period for game development is nearly twice as long as that for the other two subjects.

Pre- and Post-Teaching Assessment

The following figures represent the data determined by the application of the Student Pre-Teaching Assessment (see Appendix E) and the Student Post-Teaching Assessment (see Appendix F). The before (see Figure 4) and after (see Figure 5) measures are presented independently. Student subjects are treated alphabetically.

Pre-Teaching Assessment

Figure 4 represents data determined by the application of the Student Pre-Teaching Assessment. It was

What problems, if any, do you anticipate in teaching your simulation-game?

- A. The biggest concern--will the kids be able to understand the instructions fully, and will they be able to carry them out correctly? In other words will the game be too complicated for them? (I hope not and I don't think so)--also, hope people with the lesser roles will make the most of it.
- B. Time filling out skill card
 Problem understanding directions
 Relating game to real life
 Preoccupation with winning
 Alternative Dilemma--which way to move--how many dice
 Debriefing
- C. Students may find it difficult working together in such small groups
 Teasing of actors by those outside the group
 I may have trouble keeping the group organized and keeping the volume down to a low roar
 Students may be shy as far as acting like a baboon in front of their friends is concerned
 I anticipate trouble keeping some members of the group occupied and interested
 I'm slightly nervous as far as my evaluations by others are concerned and I hope that I can become involved enough with the children to forget that I'm being observed

Figure 4.--Student Pre-Teaching Assessment.

administered upon the completion of Lesson Plan VI, prior to the tryout in an actual elementary classroom.

Pre-Teaching Assessment Findings

The following are findings determined from the application of the Student Pre-Teaching Assessment. They deal with problems anticipated by subjects prior to classroom tryouts.

1. All of the subjects anticipated problems in field testing their simulation-games in actual elementary classrooms. This seemed a normal response for pre-service teachers.
2. Two of the subjects identified concern about the elementary school children not understanding the directions of their simulation. This concern is realistic but cannot be verified until the directions are classroom tested.
3. One subject evidenced anxiety about the lack of classroom discipline and/or involvement of the children during the teaching experience. Repeating and rephrasing this concern is indicative of the severity of that concern.
4. This same subject expressed nervousness at the thought of being observed. The others did not manifest this feeling.

5. Another student indicated that "debriefing" and "relating game to real life," nearly synonymous terms, were potential problems for her.
6. In the researcher's opinion, the anticipated problems of all subjects were not unique under these circumstances.

Post-Teaching Assessment

Figure 5 presents the data determined by the application of the Student Post-Teaching Assessment. It was administered within twenty-four hours of the subjects' completion of their classroom tryouts of their simulation-games.

Post-Teaching Assessment Findings

The following findings relate to the data presented above. They deal with whether the anticipated problems occurred and whether there were other unanticipated problems that arose.

1. Two of the three subjects evidenced that their anticipated problems in teaching their simulation-games did not materialize. It is especially interesting to note that the individual with a high level of anxiety about classroom discipline did not encounter any of those problems while teaching her simulation-game.

Did the problems you anticipated occur?

- A. Not really, the kids handled the game well, understood it while playing it and they related well in debriefing.
- B. Time
Problems understanding directions did materialize
Alternative Dilemma, which way to move--how many dice
- C. I anticipated problems with the students as far as their participation in a role-playing situation was concerned and I am pleased to report that they performed beautifully.

Were there other problems than those you anticipated?
Explain:

- A. Other problems--name tag(s) should be given to each consumer group.
- B. Good on debriefing--relation to own lives values skills for own sake helped each other--weren't out to win
[Listed as a problem because pupil input came so fast subject could not process it adequately.]

By end of game understood how to move efficiently.

- C. A couple problems did arise as far as organization was concerned:
I forgot to provide safety pins for the name tags until the game had already started.

The name tags could not be seen by all, so I have to remember to introduce the actors before they begin.

I had designed the game in such a manner that both groups would perform simultaneously. In Situation #1 they started to do this and then one group pulled back and waited for the other to finish. Since the students feel more comfortable this way, I plan to use this in my next presentation.

Figure 5.--Student Post-Teaching Assessment.

2. The individual who did experience anticipated problems only underwent half the expected number and these were not in the important area of debriefing.
3. All subjects reported unanticipated problems, not a unique situation for pre-service teachers.
4. The person who manifested concern about not being able to involve pupils effectively in debriefing activities actually experienced the opposite extreme. She found herself unable to cope with the flood of debriefing input that her simulation-game generated among her students.
5. All of the reported unanticipated problems, i.e. forgot pins, didn't make name tags and couldn't cope with success, are lessons that teachers learn from experience. Still, these were not crucial problems determining the success or failure of the teaching technique.

Classroom Tryout Assessment

The following represent data determined by the application of the "Classroom Observation Guide for Simulation-Games" (see Appendix B) to the three student subjects. Figure 6 presents: how Subject A assessed his classroom teaching tryout of his simulation-game, how the supervising classroom teacher rated the experience

A = Student

T = Teacher

R = Researcher

1. Was the hardware necessary to carry out the simulation-game physically present ready for play?

	All present	Incomplete	Couldn't Tell
--	-------------	------------	---------------

A. X

T. X

R. X

Remarks:

R. Seemed to be

2. Were students given an adequate background of the simulation-game and role identification for the play to satisfactorily begin?

	Adequate	So so	Inadequate	Couldn't Tell
--	----------	-------	------------	---------------

A. X

T. X

R. X

Remarks:

T. I missed the game but listening to the questioning it was easy to see that the kids really identified with their role.

R. Yes, some students were unfamiliar and/or unable to read some words.

3. Did players appear to understand their goals as set forth in the simulation-game?

	Very Clearly	Clearly	Some Confused	Most Unaware	Couldn't Tell
--	--------------	---------	---------------	--------------	---------------

A. X

T. X

R. X

Remarks:

A. Some confused at 1st, then got it.

4. Were the rules and constraints made clear to the players?

	Clear to All	Some Confused	Most Unaware	Couldn't Tell
--	--------------	---------------	--------------	---------------

A. X

R. X

Remarks:

R. No rules needed other than the statement that student should follow his role sheet.

5. Was the interaction sequence cycle, i.e. who goes first, second, etc. apparently clear to the players?

Very Clear Clear To Most Unclear to All Couldn't Tell

A. X

R. X

Remarks:

A. Name tags for each group should be used (but weren't at this time).

R. The idea of selecting straws seemed to intrigue students.

6. Scoring and/or evidence of achieved objectives seemed to function for players?

Very Adequately Adequate Some Confused Very Confused Couldn't Tell

A. X

T. X

R. X

Remarks:

A. Not until debriefing which is how the game should work.

7. Were the chance factors, when present, proportionate to chance elements present in the reality modeled?

Yes Maybe No Couldn't Tell

A. X

T. X

Remarks:

A. Very much so for the units exchanged in reality--everyone decides for themselves, except for the control group.

R. N/A

8. Did the debriefing cover affective as well as cognitive aspects of the issue and/or process the simulation-game models?

Very Adequately Adequate Limited Inadequately Couldn't Tell

A. X

R. X

Remarks:

R. Yes

9. Did the debriefing encourage players to transfer or relate the experience to other situations?

Very Adequately Adequate Limited Inadequately Couldn't Tell

A. X

T. X

R. X

Remarks:

A. They talked about other situations (such as auctions)

10. Did the issue and/or process this simulation-game attempted to deal with prove appropriate for this group of students, i.e. grade placement, maturity and curriculum-wise? Couldn't
- | Highly Appropriate | Appropriate | Limited | Inappropriate | Tell |
|--------------------|-------------|---------|---------------|------|
|--------------------|-------------|---------|---------------|------|

A. X
 T. X
 R. X

Remarks:

A. A few rough spots (near the beginning) but then it went smoothly.
 R. Financial exchange, high pressure selling.

11. Did the students seem motivated by participating in this simulation-game?

Too Motivated to Learn	Appropriately Motivated	Limited Motivated	Not Motivated	Couldn't Tell
---------------------------	----------------------------	----------------------	------------------	------------------

A. X
 T. X
 R. X

Remarks:

12. How would you rate the participation evidenced among the players?

High Degree Evidenced	Medium Degree	Low Degree	Couldn't Tell
--------------------------	---------------	------------	---------------

A. X
 T. X
 R. X

Remarks:

A. Some very high degree, most very adequate, a couple (2) low degree--seemed shy.
 R. A high level of interaction. True

13. Did students manifest any sense of efficacy (being able to do something about a condition) while playing the simulation-game?

To a High Degree	Medium Degree	Low Degree	None	Couldn't Tell
---------------------	---------------	------------	------	------------------

A. X
 R. X

Remarks:

A. They had to follow their roles
 R. Yes, but in nature of game

14. Did the issue and/or process modeled in this simulation-game seem realistic to the players?

	To a High Degree	Medium Degree	Low Degree	Not Realistic	Couldn't Tell
--	---------------------	---------------	------------	------------------	------------------

A. X
T. X
R. X

Remarks:

R. Student remarks evidenced high identification.

15. Did the issue and/or process modeled in this simulation-game seem relevant to the players?

	Highly So	To a Limited Degree	Not Relevant	Couldn't Tell
--	-----------	---------------------	--------------	---------------

A. X
T. X
R. X

Remarks:

A. Very much so--as it applies to their own lives as consumers.

R. True

16. Did players seem to garner feedback about their decisions while playing the simulation-game?

	High Degree	Medium Degree	Low Degree	None	Couldn't Tell
--	-------------	---------------	------------	------	---------------

A. X
R. X

Remarks:

R. Not really applicable.

17. How would you rate the degree of interaction that seemed to take place during the simulation-game?

	High	Medium	Low	None	Couldn't Tell
--	------	--------	-----	------	---------------

A. X
T. X
R. X

Remarks:

A. The pivotal people kept the game moving, and stimulated interaction much.

18. Was there evidence of peer-learning taking place during the simulation-game?

	High Degree	Moderate Degree	Limited Degree	None	Couldn't Tell
--	-------------	-----------------	----------------	------	------------------

A. X
R. X

Remarks:

R. Via interaction.

19. Was there evidence of cooperation and/or competition taking place during the simulation-game?

	High Degree	Moderate	Limited	None	Couldn't Tell
--	-------------	----------	---------	------	---------------

A.		X			
----	--	---	--	--	--

T.	X				
----	---	--	--	--	--

R.	X				
----	---	--	--	--	--

Remarks:

R. Cooperation in

20. Was the issue and/or process modeled in the simulation-game overly-simplified?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

A.			X	
----	--	--	---	--

T.			X	
----	--	--	---	--

R.			X	
----	--	--	---	--

Remarks:

A. This game would never have the same results.

R. Seemed appropriate

21. Was the simulation-game too time consuming in proportion to the amount of learning that appeared to take place?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

A.			X	
----	--	--	---	--

T.			X	
----	--	--	---	--

R.				X
----	--	--	--	---

Remarks:

22. Did students appear to learn the "wrong thing" i.e., "War is fun"?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

A.			X	
----	--	--	---	--

T.			X	
----	--	--	---	--

R.			X	
----	--	--	---	--

Remarks:

A. Immediately, they related it to their experiences.

R. Debriefing indicated pretty much met games objectives.

23. Is this simulation-game too expensive in proportion to the learning that appeared to take place?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

A.			X	
----	--	--	---	--

T.			X	
----	--	--	---	--

R.			X	
----	--	--	---	--

Remarks:

A. Hardly any cost

24. This simulation-game is proportionately too difficult to evaluate as a learning experience in comparison to other learning techniques, i.e. drawing a picture, reading a chapter or writing answers to questions?

	Yes	Maybe	No	Can't Determine
T.			X	
R.			X	

Remarks:

- R. Easy to see highly motivated. Kids evidenced considerable learning by third time of play.

Figure 6.--Classroom observation guide for simulation-games, Subject A.

and how the researcher evaluated the situation. The same format is followed in Figures 7 and 8, representing Subjects B and C, respectively. The figures are listed concurrently for comparison purposes.

Classroom Tryout Assessment Findings

The following are findings determined from the application of the Classroom Tryout Assessment. They deal with the component parts of a simulation-game and the perceived advantages and disadvantages of this instructional technique.

1. All of the subjects, supervising teachers and the researcher were able to make an assessment of the classroom tryouts of the subjects' produced simulation-games.
2. Supervising teachers tended to rate subjects higher than did subjects themselves, while the researcher rated the adequacy of the application of component parts of the simulation-games.
3. All evaluators in each of the three situations were consistent in giving a rating of "High" to interaction (Item 17) as an advantage of these simulation-games.

B = Student

T = Teacher

R = Researcher

1. Was the hardware necessary to carry out the simulation-game physically present ready for play?

All present Incomplete Couldn't Tell

B. X

T. X

R. X

Remarks:

T. (Needed pencils & paper but this would generally be in turn equipped for class--so is of no consequence)

R. Paper--pencil not available initially--not disruptive however.

2. Were students given an adequate background of the simulation-game and role identification for the play to satisfactorily begin?

Adequate So so Inadequate Couldn't Tell

B. X

T. X

R. X

Remarks:

B. Had experience with previous simulation games.

T. Very good--However I wished that the class had been further along in the Natailik units.

3. Did players appear to understand their goals as set forth in the simulation-game?

Very Clearly Clearly Some Confused Most Unaware Couldn't Tell

B. X

T. X

R. X

Remarks:

B. Weren't listening at all times to directions being given.

T. Quickly understood--few questions.

R. Knew what to do physically. Not sure they knew gest or objective.

4. Were the rules and constraints made clear to the players?

Clear to All Some Confused Most Unaware Couldn't Tell

B. X

T. X

R. X

Remarks:

B. Toward the middle of the game they were very sure of rules.

R. Kind of learn by doing thing.

5. Was the interaction sequence cycle, i.e. who goes first, second, etc. apparently clear to the players?

Very Clear Clear To Most Unclear to All Couldn't Tell

B. X

T. X

R. X

Remarks:

T. No problem.

6. Scoring and/or evidence of achieved objectives seemed to function for players?

Very Some Very Couldn't
Adequately Adequate Confused Confused Tell

B. X

T. X

R. X

Remarks:

7. Were the chance factors, when present, proportionate to chance elements present in the reality modeled?

Yes Maybe No Couldn't Tell

B. X

T. X

R. X

Remarks:

B. Good understanding by students.

T. My "maybe" is close to "yes" as I felt the proportion was not too far from being close.

R. Kids spoke of this (dice vs. life) prior to debriefing--great!

8. Did the debriefing cover affective as well as cognitive aspects of the issue and/or process the simulation-game models?

Very Couldn't
Adequately Adequate Limited Inadequately Tell

B. X

T. X

R. X

Remarks:

B. Valued pre-requisites for their own sake. Could relate facts presented to their own lives.

T. Yes, one could tell that the role playing was assumed by the children and they expressed their reflections of this.

R. Modern Eskimo values now similar to ours.

9. Did the debriefing encourage players to transfer or relate the experience to other situations?

Very Adequately	Adequate	Limited	Inadequately	Couldn't Tell
-----------------	----------	---------	--------------	---------------

B. X
T. X
R. X

Remarks:

R. Fantastic! Did so by themselves.

10. Did the issue and/or process this simulation-game attempted to deal with prove appropriate for this group of students, i.e. grade placement, maturity and curriculum-wise?

Highly Appropriate	Appropriate	Limited	Inappropriate	Couldn't Tell
--------------------	-------------	---------	---------------	---------------

B. X
T. X
R. X

Remarks:

R. An extension of existing MACOS program.

11. Did the students seem motivated by participating in this simulation-game?

Too Motivated to Learn	Appropriately Motivated	Limited Motivated	Not Motivated	Couldn't Tell
------------------------	-------------------------	-------------------	---------------	---------------

B. X
T. X
R. X

Remarks:

R. I was glad they were not overly concerned with winning.

R. Eager to play. Interested.

12. How would you rate the participation evidenced among the players?

High Degree Evidenced	Medium Degree	Low Degree	Couldn't Tell
-----------------------	---------------	------------	---------------

B. X
T. X
R. X

Remarks:

R. All did well. One girl more reserve, Natural response I think.

13. Did students manifest any sense of efficacy (being able to do something about a condition) while playing the simulation-game?

	To a High Degree	Medium Degree	Low Degree	None	Couldn't Tell
--	---------------------	---------------	------------	------	------------------

B. X
T. X
R. X

Remarks:

B. Would often go back to get skills they wanted.
R. Caught on to advantage of having vocational training and schooling. Clear cut. Yes.

14. Did the issue and/or process modeled in this simulation-game seem realistic to the players?

	To a High Degree	Medium Degree	Low Degree	Not Realistic	Couldn't Tell
--	---------------------	---------------	------------	------------------	------------------

B. X
T. X
R. X

Remarks:

B. Pointed out many instances of relation to real life.
R. Kid said "That sounds like me." Boy commented "This is like the game of life," Literal or figurative?

15. Did the issue and/or process modeled in this simulation-game seem relevant to the players?

	Highly So	To a Limited Degree	Not Relevant	Couldn't Tell
--	-----------	---------------------	--------------	---------------

B. X
T. X
R. X

Remarks:

R. See above.

16. Did players seem to garner feedback about their decisions while playing the simulation-game?

	High Degree	Medium Degree	Low Degree	None	Couldn't Tell
--	-------------	---------------	------------	------	------------------

B. X
T. X
R. X

Remarks:

B. Many times they saw mistakes or skill they had neglected
T. Lots of discussion and remarks.
R. Learned quickly from decisions. Explored alternatives modified behavior patterns.

17. How would you rate the degree of interaction that seemed to take place during the simulation-game?

	High	Medium	Low	None	Couldn't Tell
--	------	--------	-----	------	---------------

B. X
T. X
R. X

Remarks:

B. Made suggestions for moves for each other.
R. Great, yes loud but cooperative compared lists to determine how students where they did.

18. Was there evidence of peer-learning taking place during the simulation-game?

	High Degree	Moderate Degree	Limited Degree	None	Couldn't Tell
--	-------------	-----------------	----------------	------	---------------

B. X
T. X
R. X

Remarks:

B. Helped each other attain skills.
R. Yes, analysis of others moves. Advised one another.
See above.

19. Was there evidence of cooperation and/or competition taking place during the simulation-game?

	High Degree	Moderate	Limited	None	Couldn't Tell
--	-------------	----------	---------	------	---------------

B. X
T. X
R. X

Remarks:

B. No great competition--winning wasn't that important.
R. Seemed more coop., than competitive. Evidence given above.

20. Was the issue and/or process modeled in the simulation-game overly-simplified?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

B. X
T. X
R. X

Remarks:

B. Some parts were very intricate.

21. Was the simulation-game too time consuming in proportion to the amount of learning that appeared to take place?
- | | Yes | Maybe | No | Couldn't Tell |
|----|-----|-------|----|---------------|
| B. | | | X | |
| T. | | | X | |
| R. | | | X | |
- Remarks:
- B. I think it was worth the 80 minutes it took.
- R. Probably not. Though game ran over, about double expected time, kids still interested.
22. Did students appear to learn the "wrong thing," i.e. "War is fun"?
- | | Yes | Maybe | No | Couldn't Tell |
|----|-----|-------|----|---------------|
| B. | | | X | |
| T. | | | X | |
| R. | | | X | |
- Remarks:
- B. Could apply learning very well
23. Is this simulation-game too expensive in proportion to the learning that appeared to take place?
- | | Yes | Maybe | No | Couldn't Tell |
|----|-----|-------|----|---------------|
| B. | | | X | |
| T. | | | X | |
| R. | | | X | |
- Remarks:
- R. Constructing the board would be time consuming but it could be used repeatedly.
24. This simulation-game is proportionately too difficult to evaluate as a learning experience in comparison to other learning techniques, i.e. drawing a picture, reading a chapter or writing answers to questions?
- | | Yes | Maybe | No | Can't Determine |
|----|-----|-------|----|-----------------|
| B. | | | X | |
| T. | | | X | |
| R. | | | X | |
- Remarks:
- B. As long as debriefing is very adequate.
- R. I think teachers will gain skill in evaluating simulations as they garner experience with the technique.

Figure 7.--Classroom observation guide for simulation-games, Subject B.

C = Student

T = Teacher

R = Researcher

1. Was the hardware necessary to carry out the simulation-game physically present ready for play?

All present Incomplete Couldn't Tell

C. X (missing pins, etc.)

T. X

R. X

Remarks:

C. More organization needed as far as hand-outs, etc. Too much time where students have nothing to do.

T. Larger name cards?

R. Pins missing. Time lost attaching name tags.

2. Were students given an adequate background of the simulation-game and role identification for the play to satisfactorily begin?

Adequate So so Inadequate Couldn't Tell

C. X

T. X

R. X

Remarks:

C. Considering the small amount of time that was spent on the actual studies, all seemed to know exactly what they were supposed to do.

T. Suggest perhaps reading through situation and observation questions with observers.

R. Role cards covered actors. Had previously read MACOS booklets.

3. Did players appear to understand their goals as set forth in the simulation-game.

Very Some More Couldn't Tell
Clearly Clearly Confused Unaware

C. X

T. X

R. X

Remarks:

C. At first the children were not quite sure of what they were expected to do, but after the first situation was completed, there were no real problems.

T. Increased as simulation progressed.

R. Yes, kids seemed able to read role cards. Pat did answer some questions prior to play.

4. Were the rules and constraints made clear to the players?

Clear to All Some Confused More Unaware Couldn't Tell

C. X
T. X
R. X

Remarks:

- C. As game progressed, students became much more aware of their roles and of the rules. I was especially impressed by the fact that the rule concerning no talking after the acting began was carried out with no trouble.
R. Cleared up after 1st round. Not unusual.

5. Was the interaction sequence cycle, i.e. who goes first, second, etc. apparently clear to the players?

Very Clear Clear To Most Unclear to All Couldn't Tell

C. X
T. X
R. X

Remarks:

- C. This was my fault--my original plan was to have both groups acting simultaneously so that one would not copy the other and this was not made clear to the students. As it was, each group carried out their presentation in the manner in which they had planned it and it was not necessary to make the presentation at the same time.
T. Some confusion in first situation only as to whether groups would role play at some time or one at a time. Pat was aware and corrected this well.
R. What hams! Everyone eager.

6. Scoring and/or evidence of achieved objectives seemed to function for players?

Very Some Very Couldn't
Adequately Adequate Confused Confused Tell

C. X
T. X
R. X

Remarks:

- C. Each child could in some way back up his vote and I did not see any evidence of playing favorites, etc.
R. Yes, played through their roles and then listened eagerly for audience reaction.

7. Were the chance factors, when present, proportionate to chance elements present in the reality modeled?

Yes	Maybe	No	Couldn't Tell

Remarks:

T. No response from teacher.

R. N/A

8. Did the debriefing cover affective as well as cognitive aspects of the issue and/or process the simulation-game models?

Very Adequately	Adequate	Limited	Inadequately	Couldn't Tell
-----------------	----------	---------	--------------	---------------

C. x

T. X

R. X

Remarks:

C. Situation #3 seemed to bring this out the most and I see two possible explanations for that: (1) it was a controversial situation; and (2) the children were more sure of themselves and their roles.

T. Applied to self. Perhaps could have been expanded more. However, children have had little role-playing at this time and were anxious to participate. Therefore, shorter debriefing as Pat did it was probably better in this situation.

R. Both domains covered. Construction of the game encourage this, in my opinion.

9. Did the debriefing encourage players to transfer or relate the experience to other situations?

Very Adequately	Adequate	Limited	Inadequate	Couldn't Tell
-----------------	----------	---------	------------	---------------

C. X

T. X

R. X

Remarks :

C. Same answer as above! I found it difficult to get children to relate these episodes to everyday life.

T. To humans, especially themselves.

R. Yes, to a high degree. People not interested in having their children learn about evolution theories would object to this game. Transfer pretty well made on own.

10. Did the issue and/or process this simulation-game attempted to deal with prove appropriate for this group of students, i.e. grade placement, maturity and curriculum-wise?

Highly Appropriate	Appropriate	Limited	Inappropriate	Couldn't Tell
-----------------------	-------------	---------	---------------	------------------

C. X
T. X
R. X

Remarks:

- C. I had some doubts at the beginning as far as maintaining order and interest was concerned, but these never became problems. For not having had much experience in this type of a situation, I think that they behaved beautifully.
- T. Game was developed with this particular group of students, program, and grade-level in mind.
- R. I believe this was meant to be a logical extension of MACOS. Appropriate to existing materials being utilized.

11. Did the students seem motivated by participating in this simulation-game?

Too Motivated to Learn	Appropriately Motivated	Limited Motivated	Not Motivated	Couldn't Tell
---------------------------	----------------------------	----------------------	------------------	------------------

C. X
T. X
R. X

Remarks:

- C. It was a very rewarding experience for me to actually see everyone involved and so willing to participate.
- T. See #12.
- R. Whole class interested--Audience kept moving closer and closer to the actors. Evidence of being "involved."

12. How would you rate the participation evidenced among the players?

High Degree Evidenced	Medium Degree	Low Degree	Couldn't Tell
--------------------------	---------------	------------	---------------

C. X
T. X
R. X

Remarks:

- C. There was really no one who didn't participate to a minimum degree and many became very involved.
- T. All children became more and more involved as simulation progressed. Even observers kept moving closer.
- R. See above. Everyone got to play a role (being a baboon) once and evaluate two other groups. The check lists for the audience focused their attention, involved kids, and probably most important reinforced cognitive learning characteristic of baboon behavior."

13. Did students manifest any sense of efficacy (being able to do something about a condition) while playing the simulation-game?

Couldn't

To a High Degree	Medium Degree	Low Degree	None	Couldn't Tell
------------------	---------------	------------	------	---------------

C. X

R. X

Remarks:

C. The small group preparations showed much of this. There was great discussion among members as far as everyone's roles were concerned and in some cases, one or two members dominated the planning.

R. Only to the degree they could read their audience's reaction to their acting, i.e. be more obvious, etc.

14. Did the issue and/or process modeled in this simulation-game seem realistic to the players?

To a High Degree	Medium Degree	Low Degree	Not Realistic	Couldn't Tell
------------------	---------------	------------	---------------	---------------

C. X

T. X

R. X

Remarks:

C. I think that this was exemplified by the fact that so many did get really involved and had to be certain that they were doing the right thing.

T. Identified well.

R. Yes, they understood why baboons do what they do, i.e. feeding, protection, etc.

15. Did the issue and/or process modeled in this simulation-game seem relevant to the players?

Highly So	To a Limited Degree	Not Relevant	Couldn't Tell
-----------	---------------------	--------------	---------------

C. X

T. X

R. X

Remarks:

C. Here again, the high level of involvement shows that students found this to be worthwhile.

R. Yes, see above.

16. Did players seem to garner feedback about their decisions while playing the simulation-game?

High Degree	Medium Degree	Low Degree	None	Couldn't Tell
-------------	---------------	------------	------	---------------

C. X
T. X
R. X

Remarks:

- C. Children were very good about giving constructive criticism and about pointing out the specific reasons for their decisions.
T. Provided for both formally and informally.
R. Verbally between the 3 scenes. On occasions from fellow actors--while doing "their thing."

17. How would you rate the degree of interaction that seemed to take place during the simulation-game?

High	Medium	Low	None	Couldn't Tell
------	--------	-----	------	---------------

C. X
T. X
R. X

Remarks:

- C. Small groups worked beautifully together (even with some of the more difficult individuals in them) and I also noticed that in the large groups, many were working together on the evaluation sheets.
T. This really increased as simulation continued.
R. See above--Healthy, no discipline problems.

18. Was there evidence of peer-learning taking place during the simulation-game?

High Degree	Moderate Degree	Limited Degree	None	Couldn't Tell
-------------	-----------------	----------------	------	---------------

C. X
T. X
R. X

Remarks:

- C. In the small groups, those who knew the material were frantically thumbing through the booklets to show this material to the others.
T. Besides cognitive learning, children also learned a lot about group decision making from each other.
R. The interaction manifested this I think. "Yes, baboons do bark," "No, they don't."

19. Was there evidence of cooperation and/or competition taking place during the simulation-game?

	High Degree	Moderate	Limited	None	Couldn't Tell
--	-------------	----------	---------	------	---------------

C.	X				
T.	X				
R.	X				

Remarks:

- C. Small groups worked together very well (not even any real arguments over who would play what role--which was surprising) and children definitely wanted to do things right so that their group would win. An example here would be in Situation #2 where some students were very reluctant as far as grooming was concerned and others were determined to do it anyway because that's the way it was supposed to be.
- T. Children turned to those with most data. It was surprising in certain cases who became the leaders.
- R. Heavy on cooperation. The children did vote on which of the three groups did the best job of demonstrating how baboons carry out a particular function but this did not seem unusually competitive.

20. Was the issue and/or process modeled in the simulation-game overly-simplified?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

C.			X	
T.			X	
R.			X	

Remarks:

- C. I believe that the students did have to think about the situations before acting or commenting (this was especially true of the evaluation group which had to back up the reasons for the votes.

21. Was the simulation-game too time consuming in proportion to the amount of learning that appeared to take place?

	Yes	Maybe	No	Couldn't Tell
--	-----	-------	----	---------------

C.			X	
T.			X	
R.			X	

Remarks:

- C. It only took an hour (which surprised me) and I feel that for the most part, it went very smoothly.
- R. It seemed to me that the teacher could easily assess how much students knew about baboons by utilizing this technique. Experience also reinforcing for kids. Closure.

22. Did students appear to learn the "wrong thing," i.e. "War is fun"?

Yes	Maybe	No	Couldn't Tell
-----	-------	----	---------------

C.		X	
T.		X	
R.		X	

Remarks:

- C. Students who knew the material seemed able to accurately describe it to the others and everyone who commented had the right idea.

23. Is this simulation-game too expensive in proportion to the learning that appeared to take place?

Yes	Maybe	No	Couldn't Tell
-----	-------	----	---------------

C.		X	
T.		X	
R.		X	

Remarks:

- C. Considering the fact that it was more of a review or testing situation, I believe that it worked rather well. Mrs. Vert seemed to learn a lot about her students during her observations.

- T. This simulation will be included in revised program.

24. This simulation-game is proportionately too difficult to evaluate as a learning experience in comparison to other learning techniques, i.e., drawing a picture, reading a chapter or writing answers to questions?

Yes	Maybe	No	Can't Determine
-----	-------	----	-----------------

C.		X	
T.		X	
R.		X	

Remarks:

- C. Either the students know the material or they do not. At the risk of sounding conceited, I must say that I thought that the game went quite well. Many of the students really surprised me as far as their participation was concerned and it was a fantastic feeling when all of those in the back of the room moved up front to become more involved.

I can honestly say that I was a little anxious at first--especially because I knew that I was being evaluated, but I got as involved as the students did and really enjoyed myself. This group of students had an awful lot to do with the way that the game went. I wanted to kiss all of them by the time that we were through.

24. Cont'd

I do feel that the game does need some revision. As Mrs. Vert said, my comments may have stifled further discussion in some areas. Also, I need to be more organized as far as passing out materials is concerned. I must also remember to present the actors in each group to the large group before they begin, since the name tags are not always visible to everyone.

T. An excellent evaluation technique.

Order of situations were excellent. The last situation was quite value-laden and required considerable group decision-making to accomplish. Class responded well. Was order random or purposely done this way?

Pat learned as she went along. Debriefing was quite teacher directed for first situation. As class became more involved, Pat allowed debriefing to become more student-directed.

One suggestion Pat--Class response was much better when you responded with "Yes," "Are there alternatives?" and when you restated only. Response turned off when you answered with "very good" or made a decision on the rightness or wrongness of an action.

It was evident that class needed more of this kind of activity. They have not had enough role-playing or small group work. Pat did an excellent job of allowing them to learn as they went along. I was also pleased how class applied skills we have been working on to tackle this task. Activity is a good evaluative technique for both the concepts and the skills being developed in this part of our social studies program.

An interesting sidelight--two students who have never been considered "leaders" took leadership roles. I was happy to see them feel comfortable enough to assume these roles as well as their groups to accept and seek their leadership.

Pat--Please watch starting with--What was wrong? Give them a chance to decide if anything was wrong.

R. Good learning experience if you consider evaluation learning. I do. Superior evaluation instrument. Much more palatable to students than paper and pencil evaluations.

Figure 8.--Classroom observation guide for simulation-
games, Subject C.

4. Efficacy (Item 13), considered to be an advantage of the simulation-game, was found difficult or rated low by all evaluators in the assessment of the application of these simulation-games.
5. The often identified disadvantages of simulation-gaming--oversimplification of issues, extensive time consumption in relation to learning, learning the "wrong thing," high expense in proportion to learning and difficulty of evaluation (Items 20-24)--were consistently rated not present in these three situations by all evaluators, except for one rating of "couldn't tell."
6. The over-all evaluation of the three subject-produced simulation-games in actual classroom tryout was highly favorable.

Instructor's Assessment

The instructor was provided with the data reported in Figures 6, 7 and 8, excluding the researcher's evaluations, as indicated in Step V of the model (see Figure 1, p. 19). He critically reviewed the data. Orally he concluded to the researcher the following about the subjects' endeavors to write a simulation-game. There is significant evidence that students have a knowledge of the component parts and their functions and the issues and/or processes involved in writing a

simulation-game. The students are able to assess the advantages and disadvantages of this instruction technique in the classroom as supported by the supervising teachers' evaluations. The instructor further concluded that his instruction using the model had been effective.

Retrospect Measure of Anxiety

The following figure presents data determined by the application of the instrument entitled "A Look Backward" (see Appendix G). It relates to how the subjects felt at various stages in the application of "A Model for Methods Instructors Use to Assess Instruction Related to Simulation-Gaming." Subjects are treated alphabetically.

May the researcher caution the reader. These were not randomly chosen subjects. These individuals were carefully selected according to the criteria outlined in Chapter Two. Their reactions may reflect the Hawthorne effect and/or a changing relationship (more familiar) with the researcher as the study progressed.

Retrospect Measure of Anxiety Findings

The following findings were determined from the application of the "A Look Backward" instrument. They treat the subjects' feelings at various stages during the application of the model.

1. What level of anxiety did you feel while you were playing the Labor-Management simulation?

	none	some	medium	great	high
A.	X				
B.	X				
C.	X				

2. What level of anxiety did you feel when the assignment to develop a simulation-game was made?

	none	some	medium	great	high
A.		X			
B.			X		
C.		X			

Remarks:

- A. Hardly any--considered it a lot of work to come but a challenge and a good experience also.

3. What level of anxiety did you feel while you were attempting to identify an issue and/or process on which to focus your simulation-game?

	none	some	medium	great	high
A.				X	
B.		X			
C.		X			

Remarks:

- A. Great because I wanted to do something that kids would remember and relate to easily.
 C. I knew that I was expected to develop a game that had something to do with the material that the students at Pinerest were studying.

4. What level of anxiety did you feel while you were writing your simulation-game?

	none	some	medium	great	high
A.			X		
B.			X		
C.			X		

Remarks:

- A. Wanted to do the best possible job.
 C. I wanted to do a good job and I wanted it to be something that the students could be interested in. Also--knowing that someone would be commenting on my progress made it a little harder.

5. What level of anxiety did you feel while observing students prior to teaching your simulation-game?

	none	some	medium	great	high
A.	X				
B.		X			
C.				X	

Remarks:

- C. I kept watching them running around and hardly ever paying attention to anything and I couldn't picture them getting involved in my game.
6. What level of anxiety did you feel while teaching your simulation game?

	none	some	medium	great	high
A.	X				
B.		X			
C.			X		

Remarks:

- A. No major hang-up.
- C. At first, I knew that people were watching and that made me nervous, but I managed to become involved with what the children were doing and forgot that I was also being observed.

Figure 9.--Retrospect measure of anxiety, "A Look Backward."

1. Subjects indicated that they felt no anxiety while playing the simulation-game, the initiating experience of the model.
2. The highest (medium) and most consistent level of anxiety reported by the subjects occurred while they were writing their simulation-games (Item 4).
3. Subjects reported a higher level of anxiety (medium) while writing than while teaching their simulation-games.

(The writing observations were essentially a one to one relationship, while the teaching tryouts were more diffused relationships.)

Summary

This chapter presented the data determined by the observations the researcher made of (1) instruction prior to the application of the model in the college classroom, (2) the college classroom presentation of the model, (3) three subjects working on the assignment of writing a simulation-game and (4) the elementary classroom tryouts of each subject's simulation-game. The chapter further revealed the data determined by application of instruments designed by the researcher first to assess subjects' attitudes and reactions before and after they wrote their simulation-game, used it in classrooms and,

secondly, to measure subjects' anxiety in retrospect at the completion of the model.

Findings related to each of the data areas reported are also presented. These findings deal with the model, the subjects and the instructor.

CHAPTER IV

SUMMARY, CONCLUSIONS AND FINDINGS

In this chapter a summary of the study, conclusions about the model and recommendations for further study are presented. The conclusions will more specifically treat the following aspects of the model: the college classroom application, the student writing of a simulation-game, the classroom tryout of the simulation-game and the usefulness of the model to the instructor. They do represent generalizations drawn from limited

The Study

The purpose of this study was to evaluate a model for the instruction of pre-service teachers in the vocabulary related to simulation-gaming, the construction of their own simulation-games and the introduction and playing of these games in an actual classroom situation. The model also includes a technique that provides for evaluation by the supervising classroom teacher and by the methods student of the students' simulation-game

classroom tryout. This evaluation furnishes feedback to the instructor regarding the effectiveness of his college classroom instruction.

The need for this kind of study evolved from a review of theoretical literature related to the area of simulation-gaming. The search revealed no literature pertaining to the development of pre-service teachers' writing skills with regard to simulation, games and students' related experiences playing, reading and analyzing simulation-games. This finding tended to confirm the need for an exploratory study of simulation-game instruction.

A systematic analysis of the application of an identified model for assessing simulation-gaming instruction was conducted via the case study technique. The exploratory study resulted both in a generalizable model for the methods teachers population and in a series of hypotheses for future research. Moreover, the study did produce information that will assist teacher trainers in making decisions about simulation-gaming instruction in their methods courses.

The study also yielded a theoretical evaluation of the model for simulation-game instruction employed in this study as well as an empirical evaluation. Utilizing the case-study techniques, the researcher made and recorded the following observations of (1) instruction

prior to the application of the model in the college classroom, (2) the college classroom presentation of the model, (3) three students working on the assignment of writing a simulation-game and (4) the elementary classroom tryouts by each student of his simulation-game.

Instruments were designed and administered by the researcher in an attempt to assess: (1) student subjects' attitudes and reactions before and after they wrote their simulation-game and tried out their product in classrooms and (2) student subjects' anxiety in retrospect at the completion of the model. The information these observations and instruments generated was classified and tabulated. The resultant data were reported and systematically reviewed. Critical analysis of data yielded findings which were also reported. Moreover, data produced by the subjects' and the supervising teachers' evaluations of the subjects' classroom tryouts of their simulation-games were reviewed by the instructor, as provided in the model. He concluded that these data were an effective evaluation of his instruction related to simulation-gaming.

Conclusions

The systematic analysis of the application of "A Model for Methods Instructors To Assess Instruction Related to Simulation-Gaming" proves the model to be an effective technique to (1) instruct pre-service

teachers about and in the development of simulation-games and (2) provide the instructor with feedback about that instruction. Even more specific conclusions were drawn from the study, among these, the deductions related to the model which fall into the following categories: (1) college classroom instruction, (2) student writing development, (3) classroom tryout of students' simulation-games and (4) usefulness of the model to the instructor.

College Classroom Instruction Conclusions

The common experience of playing a simulation-game did effectively serve as an introduction and later as a referent for both the instructor and the students. This was evident from spoken as well as written statements. The effectiveness of experience of performing in a simulation-game served as a referent. This ability to identify is due not only to the high degree of student participation but also the interaction and realism characteristic of this teaching technique. This common frame of reference to a high degree provided structure for the remainder of the unit.

The six lesson plans (see Appendix A) helped students to master the vocabulary relevant to simulation-gaming, to build skill in identifying issues and/or processes upon which simulation-games focus and to

develop proficiency in writing simulation-games. These cognitions were manifested in oral and written statements, a finished product, i.e. student-produced simulation-games, and a favorable assessment by a supervising teacher of the classroom tryout. All students were able to complete the assigned task of writing a simulation-game to the satisfaction of the instructor. This degree of success could serve as encouragement for other teacher trainers to adopt or adapt these lesson plans.

As evidenced by fieldtest evaluations, these six lesson plans (see Appendix A) further assisted students in their skills not only in determining the advantage and disadvantages, but also in writing simulation-games that avoided the disadvantages and achieved many of the advantages of the instructional technique. This skill assistance should contribute to their ability later as classroom teachers in determining when or when not to utilize an existing simulation-game and how to write a simulation-game that will maximize existing curriculum.

Student Writing Conclusions

Students who made regular, direct observations of the children for whom they were developing simulation-games were evaluated more highly by the instructor (grade assigned simulation-game) and by the supervising teacher (rating classroom tryout), than was the individual who had only limited elementary classroom

observations. This would lead one to believe that an individual who repeatedly saw a child functioning in a classroom would develop a better concept of the child's reading limitations, motor skills and interest span, which would, in turn, tend to support the theory that pre-service teachers should have clinical exposure throughout their training period.

It appeared, too, that students who had direct, purposeful contact with an existing elementary school social studies curriculum could more quickly (as determined by the researcher's observations) and more effectively (as determined by the instructor's grades) arrive at issues and/or processes upon which to focus their simulation-game development than could a student who did not. This latter hesitancy would cause one to question how efficient and effective the transfer of content knowledge is from college content classes to the elementary school curriculum. This also tends to support clinical experiences for pre-service teachers.

Classroom Tryout Conclusions

All of the pre-service teachers anticipated problems in teaching their simulation-games. Over two-thirds of these anticipated problems did not materialize. All three of the subjects reported problems that they had not anticipated in teaching their simulation-games. Thus, application of the

model provides an aspect to teacher training that college classroom instruction alone does not, that is, determining the real problems of teaching a simulation-game in an actual classroom.

It was determined that these pre-service teachers could write simulation-games that appropriately motivated and encouraged a high degree of participation in elementary school children, as determined by an evaluation of the classroom tryouts by the student, the supervising teacher and the researcher. This suggests that, when as classroom teachers confronted in the future with unmotivated students and a curriculum that does not encourage a high degree of participation, they will possess the skill to modify those prevailing conditions. They will be able to break the chain of monotony.

Instructor's Conclusions

The instructor concluded that the model fulfilled its intended purpose. It was easily understood, was not oppressive to implement, was productive (evidenced by the quality of student made simulation-games) and was a source of feedback about instruction (evaluations of students and supervising teachers of tryouts). Moreover, the model accommodated unforeseen contingencies (student and instructor absences, last minute schedule changes) and did not impose unreasonable demands on the instructor or student. The model appeared, then, to be generalizable to

other elementary methods courses in other teacher training institutions.

Recommendations

The findings of this study represent only an initial probing in the instruction of pre-service teachers in the technique of simulation-gaming and of the assessment of that instruction.

This thesis was an exploratory study--the systematic analysis of the application of one model--but it does generate suggestions for further research:

- (1) A replication of this study with other pre-service teachers to substantiate these findings;
- (2) A replication of this study with in-service teachers to ascertain effectiveness and impact;
- (3) A replication of this study substituting another content field, i.e. mathematics or science, to determine if the model relates more favorably to some disciplines than to others;
- (4) A longitudinal study to determine if individuals who experience this model are more inclined to have children in their own classes write and play simulation-games than individuals who have not experienced the model;
- (5) A study varying the time intervals between the application of the six lesson plans (Appendix A)

to determine the optimal span necessary to regulate theory input in order to maximize learning.

- (6) A comparison between the effectiveness of the model and a modification of the model consisting of the initial playing of a simulation-game (for example, "Caribou Hunting at a Crossing Point"),¹ followed by a case study of the development of that simulation-game (see Fletcher, Koehller, Martin)² and, finally, the use of the technique of a class writing a simulation-game as a group activity.³
- (7) A study to determine if increasing the number of times a simulation-game is played during the awareness experience (see Lesson I, Appendix A) has any significant impact on writing skill development.
- (8) A study to determine what aspect of the model such as playing a simulation-game, analysis of a simulation-game for component parts, in the opinions of the students and of the instructor contributed most to the development of writing skills.

¹Fletcher, Koehller, and Martin, op. cit.

²Ibid.

³Ann Shelly, Unpublished Study, Michigan State University, East Lansing, 1972.

The findings of such studies as briefly outlined above would no doubt contribute substantially to the improvement of instruction of pre-service teachers in the area of simulation-gaming. Repeated and more frequent utilization of the case study will also sharpen and enhance its contribution as a research technique.

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APPENDICES

APPENDIX A

LESSON PLANS

Lesson Plan I

- Objective: The purpose of this activity, playing "Labor-Management Simulation" is to introduce and acquaint students with the field of simulation-gaming. This experience will provide a common frame of reference for the students in future developmental activities.
- Prerequisites: Upper elementary reading skills and normal motor skills dexterity.
- Setting: Total class activity, movable seating and tables. Positive educational environment, i.e. comfortable room temperature and lighting.
- Materials: Copies of "Labor-Management Simulation" (For Teacher and Students)*
Role Sheets
Play money
Name tags
Shape checker sheet
Chair signs
Additional shape sheets
- Teaching Strategy: We are going to play a simulation-game. It compresses time and simplifies a complex situation. Play the "Labor-Management Simulation" as written by the author with the addition of individual name tags and the player to serve as a checker.
- Time: Approximately two class periods.
- Evaluation: Students will be able to verbally respond to the questions included in the simulation and to questions about learning and teaching strategies.

* Erwin Rausch, "Labor-Management Simulation," in Promise of America: Teacher Tactics, ed. by Philip Roden (Glenview, Ill.: Scott, Foresman and Company, 1971), pp. 127-41.

(To be used immediately following the debriefing exercise included in the Labor-Management Simulation.)

QUESTIONS RELATED TO LEARNING TECHNIQUES

1. ARE THERE OTHER QUESTIONS THAT SHOULD HAVE BEEN ASKED TO ENHANCE THIS AS A LEARNING EXPERIENCE?

Yes, some questions seeking transfer or relating this new cognition and/or affective feeling to another situation for purposes of finding similarities and/or differences to encourage new insights.

The question might be, "Do you know of a conflict situation where some thing like this happened to you or someone you know?" A possible follow-up might be, "Could similar negotiation techniques have been applied? Why? Why not?"

2. WHAT SEEM TO BE SOME ADVANTAGES OF THIS TEACHING TECHNIQUE?

The simulation-game was motivational because it was dramatic.*

The experience allowed the total class to participate at once.

It gave us a sense of efficacy after creating some initial frustration.

The situation was relatively realistic and relevant.

The simulation-game provided immediate feedback on our decisions furnishing reinforcement to our learning.

Our activity was goal oriented yet had an element of open-endedness.

The experience provided for a high degree of interaction and possible learning from our classmates (peer-learning).

It allowed for instances where we cooperated and also competed.

* Please list the key words which are underlined in these sample answers on the board. Accept variations. This is not a total listing--students may perceive other key words.

3. WHAT SEEM TO BE SOME DISADVANTAGES OF THIS TEACHING TECHNIQUE?

The simulation-game over-simplified the very complex techniques* of negotiations.

We were noisy, i.e. overly motivated. We were disappointed at not winning.

The exercise was too time consuming for what we got out of it.

We learned the "wrong" thing. Browbeating employees is fun.

I didn't know enough (too alien to perceive) about my role to really be effective.

Now ask the class to read both the list of advantages and disadvantages. Check if anyone has any question about any of the items listed. Clarify if necessary.

ASK THE GROUP TO COMPARE AND CONTRAST THE RELATIVE ADVANTAGES AND DISADVANTAGES OF SIMULATION-GAMING IN THEIR OWN MINDS.

Then ask the following question:

4. IN WHAT KIND OF CLASSROOM SITUATION DOES IT SEEM APPROPRIATE TO UTILIZE THE SIMULATION-GAME TECHNIQUE?

There is no one "right" answer. Student responses may encompass some combinations or reasonable variations of the advantages previously listed or others that occurred to students during the comparing-contrasting exercise.

A sample response is, "I would use a simulation-game early in a unit to encourage motivation in the topic. The technique seems to require limited reading skills and should encourage my slow readers to become interested and more likely to read about the topic."

Seek reactions to this contribution from other members of the group by asking, "Mary, what do you think about that statement?"

Solicit other opinions until you feel adequate coverage has been presented.

* Please also list these key words or variations on the board. Accept others students may offer.

Distribute a copy of "Labor-Management Simulation" to each member of the class. Ask them to please read the total simulation prior to the next class meeting when it will be structurally analyzed.

Lesson Plan II

- Objective: The purpose of this lesson is to introduce and acquaint students with terminology, characteristics and component parts common to and utilized in simulation, gaming and simulation-gaming.
- Prerequisites: Satisfactory completion of the initial awareness experience, i.e. playing "Labor-Management Simulation." Read "Labor-Management Simulation" prior to this class.
- Setting: A total class activity with students seated in a semi-circle facing the chalk board. Positive educational environment, i.e. comfortable room temperature and lighting.
- Materials: Copies of handout "A Glossary for Simulation-Gaming" for students and instructor.
- Copies of the previously played "Labor-Management Simulation" (Scott, Foresman & Co.).
- A Guide to Component Parts (keyed to "Labor-Management Simulation") for instructor.
- Samples of games, simulations and simulation-games.
- For homework:
- Copies of "Caribou Hunting at a Crossing Place" (Education Development Center) for students and instructor
- Copies of a handout "Component Parts of a Simulation-Game Worksheet" for students.

Teaching Strategy:

1. Distribute, read and discuss "A Glossary for Simulation-Gaming."

2. List on the board and discuss the general characteristics of games, simulations and simulation-games, i.e. simple to complex, free to very expensive, no related hardware to heavy hardware utilization (records, filmstrips, etc.), non-computerized to computerized.
3. Display and examine representative samples of games, simulations and simulation-games. Utilize "Display and Examination of Other Samples."
4. Identify by analysis of the previously played "Labor-Management Simulation" the component parts of a simulation-game. Also note components not present, i.e. chance factors.
5. Distribute "Caribou Hunting at a Crossing Place" and "Component Parts of a Simulation-Game Worksheet." Assign students to read and analyze the simulation and indicate on the worksheet the component parts present as homework. Instruct students that they are working with a student copy, that the top page is the game board and that they should number the following pages 1, 2, & 3 for easy reference. Explain that students ordinarily will have seen a film on caribou hunting prior to playing the simulation.

Time: Approximately one class period.

Evaluation: Students will be able verbally to define terms and identify component parts of games, simulations and simulation games.

A GLOSSARY
for
SIMULATION-GAMING

There is some difference of opinion among educators regarding the meanings of some of the following words. For the purposes of our study let us work with the following definitions:

<u>Model</u>	A model is a simplified representation reflecting important aspects of a more complex real life situation. The model may be symbolic, mathematical, logical or a combination of these. It reflects physical or social reality.
<u>Role Playing</u>	Role playing is a form of social interaction involving an individual and a status position. Role playing may range in nature from sharply defined positions to open-ended situations.
<u>Simulations</u>	Simulation is a combination of modeling and role playing. It involves individuals with select elements of reality for dynamic interaction, i.e. negotiation and decision-making. Simulation is often issue-oriented in nature.
<u>Game</u>	A game has a set goal orientation involving established rules and elements of competition among players to achieve the set goal. Achieving the set goal may be considered "winning." Games often represent a process situation.
<u>Simulation-Game</u>	A simulation-game is a blend of simulation and gaming including some combination of the elements of modeling reality, role play and competition for motivational purposes. It is characterized by a high degree of interaction.
<u>Chance-Factor</u>	Chance factor is a condition or conditions beyond the control of the participants, often represented by the toss of dice or the turn of a spinner device. Chance factors may be present in games, simulations and simulation-games.

DISPLAY AND EXAMINATION OF OTHER SAMPLES

Teaching Strategy 3Lesson Plan II

We have indicated earlier that the distinctions between games, simulations and simulation-games is sometimes difficult to draw. We are going to examine several samples that we consider representative, but perhaps are not totally pure examples. Distinctive characteristics are present, however.

GAME:

Name: Blacks and Whites by Communication/Research/Machines/Inc.

Type: A board game utilizing dice, play money, opportunity card and deed cards.

Theme: To "give whites a taste of the helplessness that comes from living against implacable odds."

Number of Players: Nine

Playing Time: Related to tolerance of players.

Chance Factors: Present, determine by the throw of dice.

Grade Placement: Probably 5th grade and up.

SIMULATION:

Name: 1787 A Simulation Game, by Olcott Forward, Inc.

Type: Though called a simulation game by the authors, we chose to use it as an example of a simulation because it emphasizes role-play and has little or no elements of "winning." Some elements of competition exist in seeking support for points of view.

Materials consist of delegate handbooks, profile cards, a recording and handouts.

Theme: Students play fictional delegates to a mock constitutional convention. The content represents a set of real political interests which were important in the early days of the United States.

Number of Players: 16 fictional delegate roles, but a delegation may consist of more than one student.

Playing Time: Three days to two weeks.

Chance Factors: None

Grade Placement: Junior high and up.

SIMULATION-GAME

Name: Recycling Resources by Continental Can Co.

Type: A role playing mayor and company executives interact in a pollution control model using a spinner, play money, pollution chips, dump, city treatment center and a banker's box.

Theme: Considers pollution control by focusing on interdependence.

Number of Players: Four groups of five to nine students, optimum number being seven. Two groups must play at once because scoring is among roles in groups.

Playing Time: 12 - 17 class hours.

Chance Factor: Present, in a spinner.

Grade Placement: Grade 4 and up.

A GUIDE TO COMPONENT PARTS

(Keyed to "Labor-Management Simulation")

Teaching Strategy 4Lesson Plan II

Here are some component parts common to games, simulations and simulation-games. Not all items will be present in each instrument, and they may indeed have other labels or titles.

A general comprehension of the nature of these elements will prove helpful to students later when they attempt to design their own simulation-game.

Component Parts	Explanation	Present in "Labor-Management Simulation"
Purpose or Objective	A specific statement of what the instrument's potential utility is as perceived by the author.	pg. 127
Scenario	Setting the stage and instructing the actors for the beginning of play.	pg. 128 Pre-Game Discussion
Key Actors Players	Individuals, groups, organizations or institutions who make decisions in the process.	p. 127
Materials	A list of hardware needed to carry out the activity.	pg. 127
Chance Factors	The contingencies on which an actor takes a risk. Represented by dice, spinner or cards common to games.	not present
Actor Player Goals	A statement of what an actor is attempting to achieve, i.e. "how to win."	pg. 128 Pre-Game Discussion also role sheets

Actor-Player Resources	A supply, amount or condition available to an actor of information, votes or money.	pgs. 128, 130-39.
Decision Rules	A statement of who can do what, where, when, how and why. Relates to "how to win."	pgs. 127-29.
Interaction Sequence	The cycle of interaction between actors including resources and information transfer.	pgs. 127-29.
External Constraints	A statement of what actors may not do.	pg. 130 . . . using only your bare hands. pg. 138 . . . Let him . . . do the speaking for you.
Scoring	A statement of what constitutes "winning" for each actor. What constitutes achieved objectives.	pg. 129
Sequence of Operation	The sequence of action, i.e. initiating, developmental, culminating and debriefing	pg. 127-29.

Component Parts of a Simulation-Game
Worksheet

First read the simulation-game all the way through. Then start again to read filling in sample statements or the page location of the component parts as parts as you come across them. You may not have an entry for each item listed in the left column. You may find elements of a component in several places in the simulation-game.

Component Part	Identification
Purpose or Objective	
Scenario	
Key Players Actors	
Materials	
Chance Factors	
Actor-Player Goals	
Actor-Player Resources	
Decision Rules	
Interaction Sequence	
External Constraints	
Scoring	
Sequence of Operation	
a. Initiating	
b. Developmental	
c. Culmination	
d. Debriefing	

Lesson Plan III

- Objective: The purpose of this lesson is largely one of self-evaluation and moving to closure on recognition of terminology, the characteristics and component parts common to and utilized in simulation, gaming and simulation-gaming. The student will be able to assess for himself his own degree of proficiency while participating in the group review and analysis of "Caribou Hunting at a Crossing Place." Students will be able to state orally glossary definitions and describe the minimal component parts of a simulation-game.
- Prerequisites: Students will have read "Caribou Hunting at a Crossing Place" and completed the "Component Parts of a Simulation-Game Worksheet" based on this reading.
- Setting: A total class activity with students seated in a semi-circle facing the chalkboard. Positive educational environment, i.e. comfortable room temperature and lighting.
- Materials: Copies "Caribou Hunting at a Crossing Place" (Education Development Center) for students and instructor.
Copy "A Guide to Component Parts," keyed to "Caribou Hunting at a Crossing Place," for instructor.
- Teaching Strategy:

1. Review and discuss as a class each component part of a simulation-game as identified in the related "A Guide to Component Parts."

Ask as an opener, "WHAT IS USUALLY CONSIDERED TO BE THE INITIAL TASK IN WRITING A SIMULATION-GAME?"

A possible response might be, "DETERMINING AN APPROPRIATE PURPOSE AND/OR SET OF OBJECTIVES."

Seek clarification, when necessary, by asking, "WHAT DO YOU MEAN BY . . . ?"

Seek extension of definitions, when necessary, by asking, "CAN YOU TELL US MORE ABOUT THAT?"

As the group moves from point to point, determine if individuals have specific questions by asking, "DOES ANYONE HAVE A QUESTION ABOUT THIS FACET?"

Continue this pattern of eliciting from the group definitions, clarifications, and extensions, as needed, until all component parts have been treated to the satisfaction of the group.

2. Then ask, "DOES ANYONE SEE HOW SEVERAL OF THESE FACETS ARE DIRECTLY RELATED OR INTERACT?"

A possible response might be, "ACTORS, ACTOR'S GOALS AND RESOURCES." List combinations of the component parts on the chalkboard. Then ask, "WHY DO YOU SAY THAT?" or "WHAT IS THE RELATIONSHIP YOU SEE?" Determine if other members of the group see the same relationship. Ask if other people see other relationships.

Cease this pattern of questioning when the major relationships have been explored to the satisfaction of the group.

3. As an introduction to the homework assignment, shift now to a discussion of how a social science concept or cluster of concepts or a generalization reflecting a process or an issue serves as the focus of a simulation-game.

Review these processes or issues and some related concepts that were involved in the simulation-games which the group has read and analyzed, i.e. "Labor-Management Simulation" and "Caribou Hunting at a Crossing Place."

	Labor-Management Simulation	Caribou Hunting at a Crossing Place
Issue or Process	The formation of a union* A collective bargaining situation	The hutning practices utilized by some Eskimos to gain cari- bou for sur- vival

* These are only representative and should not be considered an all-inclusive list. Students will generate a wider range.

	Labor-Management Simulation	Caribou Hunting at a Crossing Place
Related Concept or Generalization	Negotiation, steward Labor and management can effectively bar- gain to reach a position agreeable to both parties	The Eskimo is highly depen- dent on nature as a source of food for survival.

4. Assign students as homework the task of selecting significant issues and/or processes appropriate for the grade level they wish to teach that might be processed into simulation-games. For Monday, write down issues and/or processes and be prepared to present these to the group. These will be reviewed as a group at the beginning of the next class meeting.

Indicate that one criterion for selection should be an in-depth knowledge of the dynamic interaction involved in the process or issue. It may be helpful to students to think about a significant personal life's experience, a recently read book or the notes of a social studies course.

Time: Approximately one class period.

Evaluation: Students will be able verbally to define terms and identify component parts of games, simulations and simulation-games.

A GUIDE TO COMPONENT PARTS

(Keyed to "Caribou Hunting at a Crossing Place")

You have had an opportunity to read and analyze the actual student version of the simulation-game "Caribou-Hunting at a Crossing Place" to determine component parts of a simulation-game. The purpose of doing this analysis is to help you gain a better comprehension of the field of simulation-gaming which in turn should assist you in your assignment later of writing a simulation-game.

Let's review as a group your findings. Individually follow along on your own worksheets. Feel free to volunteer your opinions about what a component part is and do ask questions if you aren't sure about a point.

Component Parts	Explanation	Present in "Caribou Hunting at a Crossing Place"
Purpose of Objective	A specific statement of what is to be done in the simulation-game.	Top pg. 1
Scenario	Setting the stage and instructing actors for the beginning of play.	Partially done in a movie students see prior to playing the simulation-game and/or in statements on pg. 1 "The herd starts at C." "First he moves a Beater," "Beater start the game . . . " "Inukshuks are piles . . . " and pg. 2 "At the beginning of the game . . . "
Key Actors Players	Individuals who make decisions and moves	Top of pg. 1 and 2
Materials	The hardware needed to carry out the activity	Game board cover page; Dice indicated on pgs. 1 & 2; Red marker pg. 1 Black marker pg. 2

Chance Factors	The contingencies on which an actor takes a risk. Common to games.	Dice
Actor-Player Goals	A statement of what an actor is attempting to achieve, i.e. "How to win."	Object . . . p. 1. A kill is made pg. 2. "Winning" for caribou is survival." The game ends . . . " bottom pg. 2.
Actor-Player Resources	A supply, amount or condition available to an actor of information, votes or money.	Inukshuks . . . top pg. 1 . . . Hunter puts his kayak . . . top pg. 2.
Decision Rules	A statement of who can do what, where, when, how and why. Relates to "how to win."	Scattered throughout. Sample: The Herd moves . . . top pg. 1.
Interaction Sequence	The cycle of interaction between actors including resources and information.	"First the Herd moves, then one Beater . . . " center pg. 1. "If the Herd lands on . . . " top pg. 3.
External Constraints	A statement of what actors may not do.	"Each Beater can build . . . but not closer . . . " pg. 1. "The Herd cannot turn back . . . " bottom pg. 2.
Scoring	A statement of what constitutes "winning" for each actor. What constitutes achieved objectives.	A kill is made . . . top pg. 2. Implied "winning" for Herd is "The game ends when . . . " bottom pg. 2.
Sequence of Operation	The sequence of action, i.e. initiating, development, culminating and debriefing.	Initiating, top pg. 1; Developmental, pg. 1 & 2; Culminating, bottom pg. 2 Debriefing, not present in student edition.

Lesson Plan IV

- Objective: The purpose of this lesson is to acquaint students with the points and processes to consider in the writing of a simulation game. Students will be able to state orally these points and processes.
- Prerequisites: Students will have completed and evaluated their own "Component Parts of a Simulation-Game Worksheet" dealing with "Caribou Hunting at a Crossing Place."
- Setting: A total class activity with students seated in a semi-circle facing an overhead projector and screen. Positive educational environment, i.e. comfortable room temperature and lighting.
- Materials: Copies "Assignment Sheet," students' copies "A Guide to Writing Simulation Games" for students and instructor. Transparencies "Points and Processes in Writing Simulation-Games" and "Advantages and Disadvantages of Simulation-Gaming" for instructor. Overhead Projector, Screen and Marker.

Teaching Strategy:

1. Using the transparency "Advantages and disadvantages of Simulation-Gaming," briefly discuss the advantages and disadvantages of simulation-gaming. The instructor will draw on the students' experiences of having played the "Labor-Management Simulation," their analysis of "Caribou Hunting at a Crossing Place" and their exposure to "Blacks and Whites," "1787 A Simulation-Game" and "Recycling Resources."
2. Now shift to a group consideration of the student's homework task of selecting significant, interaction laden issues and/or processes appropriate for the grade level they wish to teach that they feel might be processed into a simulation-game.

Seek volunteers. Ask, "PLEASE INDICATE THE ISSUE OR PROCESS YOU HAVE SELECTED, HOW IT IS INTERACTION ORIENTED, AND HOW IT RELATES TO THE ADVANTAGES AND DISADVANTAGES OF SIMULATION-GAMING PREVIOUSLY DISCUSSED."

Continue to display the transparency "Advantages and Disadvantages of Simulation-Gaming."

Seek reactions to the -esponse from other members of the class by asking, "WHY DO YOU AGREE OR DIS-AGREE?"

Repeat this questioning process until you feel students are making appropriate assessments.

3. Now shift to the transparency "Points and Processes in Writing Simulation-Games." Explain that the group's next task is to write a simulation-game based on the appropriate issue or process that they have selected. Distribute the handouts "Assignment Sheet" and "A Guide to Writing Simulation-Games."

Introduce and proceed to discuss each facet of "Points and Processes in Writing Simulation-Games." Provide clarification and extension of explanations when sought or when there appears to be a need (non-verbal expression).

4. Announce the assignment will be due in ten days, Wednesday, February 9. Encourage students to start promptly on this task because class time on Friday will be devoted to resolving problems encountered in the production of the simulation-game.

"POINTS AND PROCESSES IN WRITING
SIMULATION GAMES"

(Instructor's copy with suggested lecture material)

Use in Teaching Strategy 3

Lesson IV

Designing a simulation-game is not a step-by-step procedure if you have truly selected an interaction laden issue or process to reflect in your simulation-game. Each facet of the simulation-game relates to or interacts with one or more aspects. For example, actor's decisions will depend on or vary with resources which in turn relates to scoring. If your simulation-game is dynamic, it will be greater than the sum total of the component parts. Thus, you will need to think about more than one component and the related interaction while you are actually writing about one facet. It is a challenging but rewarding task.

DETERMINE OVERALL OBJECTIVES OR GOALS

Answer the question, "What do you want to teach, test or acquaint students with?"

This will result in a statement or a series of statements, perhaps written in behavioral terms.

This may well be the first entry in your writing adventure because it sets the purpose for the simulation-game. These objectives will prove helpful later in lesson or unit planning.

DETERMINE THE "BALL-PARK" IN WHICH YOU WANT TO OPERATE

Answer the question, "What issue or process will be treated, when (timewise), where (geographically) and how?"

Though this consideration is greater in magnitude, it should result in the statement of a scenario (setting the stage and instructing actors for the beginning of play).

The scenario statement should also appear early in your creation.

DETERMINE WHAT ACTORS WILL BE PARTICIPATING

Answer the question, "Who (individuals, groups or combinations) will be making what decisions?"

Strive to have nearly everyone involved in some phase of decision-making most of the time. Remember, an individual may represent a group or, if the class is large, a group may represent an individual. Attempt to keep the number of players in ratio to the element of reality your model reflects.

This determination will result in a simple listing of how many will participate in what roles, representing another facet of your written development.

DETERMINE WHAT ARE THE ACTOR'S GOALS I.E. HOW TO "WIN."

Answer the question, "What do you want actors to achieve, i.e. wealth, votes or influence?"

These goals involve manipulations resulting in changing amounts and degrees of resources. This manipulation is an integral part of the issue or process you are attempting to study via the simulation-game; you will find that material things (play money) are more easily manipulated and measured than are ideological objectives.

These actor's goals will be indicated in the scenario and, more specifically, in the actor role profiles. Once totally defined, in your manual, these role profiles may take the form of cards or sheets handed directly to each actor, thus defining his role for him.

DETERMINE WHAT ARE THE ACTOR'S RESOURCES, I.E. TROOPS, INFORMATION OR MONEY.

Answer the question, "What do the actors have to exchange or use in achieving their goals?"

Actors may have chips (tangibles) or information (intangibles) or some combination of these resources. The amount and distribution of resources is directly related to what you want the actor to experience. Review your actor's goals.

Actor's resources are indicated in the actor's role profiles and in the actor's goals of your developing simulation-game. If the resources are physical in nature such as chips, they will be listed in the materials section, to be discussed later.

DETERMINE THE ACTOR'S DECISION RULES.

Answer the question, "Who do you want to do what, where, when, how and why as they attempt to achieve or 'win'?"

Keep these rules simple and related to the elements of reality your model images. The rules or criteria should not be too structured limiting the actor's possibilities of making alternative decisions.

These will be distributed where they seem most appropriate for your particular development. They may be in the body itself of the simulation-game or in the role-profiles segment.

DETERMINE AN ACTOR'S INTERACTION SEQUENCE CYCLE.

Answer the question, "In what order and by whom do you want the action to take place?"

Interaction sequence cycling is essentially a phasing or scheduling task. You indicate who goes "first" and how resources and/or information are transferred.

This interaction sequence may be clearly delineated in a specific section of the simulation-game or may be scattered throughout the developmental portion as actors enter new phases of activity, depending on the nature of your operation.

DETERMINE WHAT EXTERNAL CONSTRAINTS WILL BE ENFORCED.

Answer the question, "What kinds of things are actors not to do?"

These are statements of prohibited performance to the actors. These must be in keeping with the nature of the character assumed by the student and the model of reflected reality utilized in the simulation-game.

These constraints may be written into the role profiles or indicated in the scenario of your simulation game.

DETERMINE MEASURES OF WHAT CONSTITUTES ACHIEVEMENT OF GOALS BY THE RESPECTIVE ACTORS--SCORING.

Answer the question, "How will an actor know that he has achieved his goals?"

It is most helpful here to refer back to the actor's goals. Check if your scoring statements are consistent and comprehensive throughout the materials you have written.

Generally speaking, chance factors, the contingencies on which an actor takes a risk, should only be present to the degree that chance is present in the reality modeled. Chance factors such as weather can be represented by

dice, a spinner or cards. Chance factors are present to a greater degree in games than in simulation-games.

These scoring statements may be written into table form and appear as a specific section or may be reported in the role profiles and/or rules depending on what constitutes scoring. Physical components of chance factors will be reported in the materials section.

DETERMINE WHAT HARDWARE IS NEEDED TO MAKE THIS PROPOSED SIMULATION-GAME OPERATIONAL.

Answer the question, "What and how many material things, i.e. name tags, chips or game boards will be needed to carry out this interaction situation?"

Read through what you have written and make a simple listing of what and how many items are needed by the actors to do what you want done.

Though this is one of the last things you do in the production of a simulation-game, it should be written into your final draft relatively early to assist you later in your lesson planning. You will need to know if all of the hardware is physically available before starting the learning experience.

DETERMINE IF YOUR TOTAL PRODUCT HAS A SENSE OF CONTINUITY AND ACCURACY.

Answer the question, "Is this product ready for the classroom?"

Essentially, this is a review of your earlier thinking and writing. It is a check to determine that your product does what you want it to do, is in an appropriate form for the grade where you want to utilize it, and does have continuity. Do actors know when and how to start (initiate), does the issue and/or process you are focusing on evolve (developmental) and are there definite termination activities present (culmination) followed by appropriate debriefing.

The debriefing or talk-down is usually a questioning strategy designed to maximize the learning experience. It deals with both the cognitive and affective domains. Here you seek a degree of closure. Debriefing is usually the last item in a simulation-game.

Now think of a title, one that reflects the dynamic interaction of your creative endeavor and will attract your students. Proudly enter that on the top line of your promising product.

(THIS IS A COPY OF THE TRANSPARENCY USED)

Teaching Strategy 1

Lesson Plan IV

SIMULATION-GAMING

<u>Advantages</u>	<u>Disadvantages</u>
Motivational	Over-Simplify
Participate	Overly Motivated
Efficacy	Too Time Consuming
Realistic	Learned Wrong Thing
Feedback	Too Costly
Relevant	Difficult to Evaluate
Goal Oriented	
Open-Ended	
Interaction	
Peer-Learning	
Cooperation	
Competition	

(This is a copy of the transparency used)

POINTS AND PROCESSES IN WRITING
SIMULATION-GAMES

Teaching Strategy 3

Lesson Plan IV

Also Lesson Plan V

DETERMINE OVERALL OBJECTIVES OR GOALS.

Answer the question, "What do you want to teach, test or acquaint students with?"

DETERMINE THE "BALL-"ARK" IN WHICH YOU WANT TO OPERATE.

Answer the question, "What issue or process will be treated, when (time wise), where (geographically) and how?"

DETERMINE WHAT ACTORS WILL BE PARTICIPATING.

Answer the question, "Who (individuals, groups or combinations) will be making what decisions?"

DETERMINE WHAT ARE THE ACTOR'S GOALS, I.E. HOW TO "WIN."

Answer the question, "What do you want actors to achieve, i.e. wealth, votes or influences?"

DETERMINE WHAT ARE THE ACTOR'S RESOURCES, I.E. TROOPS, INFORMATION OR MONEY.

Answer the question, "What do the actors have to exchange or use in achieving their goals?"

DETERMINE THE ACTOR'S DECISION RULES.

Answer the question, "Who do you want to do what, where, when, how and why as they attempt to achieve or 'win'?"

DETERMINE AN ACTOR'S INTERACTION SEQUENCE CYCLE.

Answer the question, "In what order and by whom do you want the action to take place?"

DETERMINE WHAT EXTERNAL CONSTRAINTS WILL BE ENFORCED.

Answer the question, "What kinds of things are actors not to do?"

POINTS AND PROCESSES IN WRITING
SIMULATION-GAMES

Teaching Strategy 3

Lesson Plan IV

DETERMINE OVERALL OBJECTIVES OR GOALS.

Answer the question, "What do you want to teach, test or acquaint students with?"

DETERMINE THE "BALL-"PARK IN WHICH YOU WANT TO OPERATE.

Answer the question, "What issue or process will be treated, when (time wise), where (geographically) and how?"

DETERMINE WHAT ACTORS WILL BE PARTICIPATING.

Answer the question, "Who (individuals, groups, or combinations) will be making what decisions?"

DETERMINE WHAT ARE THE ACTOR'S GOALS, I.E. HOW TO "WIN."

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Answer the question, "What do the actors have to exchange or use in achieving their goals?"

DETERMINE THE ACTOR'S DECISION RULES.

Answer the question, "Who do you want to do what, where, when, how and why as they attempt to achieve or 'win'?"

DETERMINE AN ACTOR'S INTERACTION SEQUENCE CYCLE.

Answer the question, "In what order and by whom do you want the action to take place?"

DETERMINE WHAT EXTERNAL CONSTRAINTS WILL BE ENFORCED.

Answer the question, "What kinds of things are actors not to do?"

DETERMINE MEASURES OF WHAT CONSTITUTES ACHIEVEMENT OF GOALS BY THE RESPECTIVE ACTORS--SCORING.

Answer the question, "How will an actor know that he has achieved his goals?"

DETERMINE WHAT HARDWARE IS NEEDED TO MAKE THIS PROPOSED SIMULATION-GAME OPERATIONAL.

Answer the question, "What and how many material things, i.e. name tags, chips or game boards will be needed to carry out this interaction situation?"

DETERMINE IF YOUR TOTAL PRODUCT HAS A SENSE OF CONTINUITY AND ACCURACY.

Answer the question, "Is this product ready for the classroom?"

Assignment #4, Designing Simulation-Games

Objective: Students will design an original simulation-game, simulation or game including a brief statement of background information on type of pupils for whom the game is intended, school setting and the existing social studies curriculum with which the product will be used. (State if your product is a simulation-game, simulation or game.)

Prerequisite: Students should have actively participated in and analyzed the "Labor-Management Simulation"; analyzed "Caribou Hunting at a Crossing Place" using "Component Parts of a Simulation-Game Worksheet"; become familiar with a "Glossary for Simulation-Gaming," had exposure to "Blacks and Whites," "1787 A Simulation-Game" and "Recycling Resources"; and become familiar with "Points and Processes in Writing Simulation-Games."

Setting: Students will work independently in and out of class.

Materials: Assignment Sheet, Glossary, "Labor-Management Simulation," "Caribou Hunting at a Crossing Place," "Component Parts of a Simulation-Game Worksheet," "Points and Processes in Writing Simulation-Games."

Time: Varies with the student.

Evaluation: The instructor will evaluate your product in terms of consistency with "Glossary for Simulation-Gaming," "Component Parts of a Simulation-Game Worksheet" and "Points and Processes in Writing Simulation-Games." Your product, including the background statement, will be reviewed further for clarity, conciseness and appropriateness for grade placement.

Products will be graded as follows:

- "Proficient" = 17-20 points
- "Acceptable" = 12-16 points
- "Unacceptable" = 0-11 points

The assignment constitutes 25 per cent of the final grade.

Lesson Plan V

Objective: The purpose of this lesson is to provide support, clarification and additional input, where deemed necessary by the instructor, for students in their task of writing a simulation-game.

Prerequisite: Students will have read the "Assignment Sheet," "A Guide to Writing Simulation-Games," "A Glossary for Simulation-Games" and related notes and have made ventures into the task of writing a simulation-game.

Setting: A total class activity with students seated in a semi-circle facing an overhead projector and screen. Positive educational environment, i.e. comfortable temperature and lighting prevail.

Materials:

1. Copies "Assignment Sheet" for students (Distributed Lesson IV).
2. Copies "A Guide to Writing Simulation-Games" (Distributed Lesson IV).
3. Transparency "Points and Processes in Writing Simulation Games" (see Lesson Plan IV).

Teaching Strategies:

- (a) Select an area you already know a great deal about-- a significant personal life's experience, a recently read book or notes of a social studies course--to reduce research time and provide needed in-depth knowledge.
- (b) The area should involve a dynamic interaction process, issue or a combination, using both a process and an issue.

INDICATE THAT NOT MEETING THESE CRITERIA MOST COMMONLY CONTRIBUTES TO DIFFICULTY IN WRITING A SIMULATION-GAME.

Using the transparency "Points and Processes in Writing Simulation Games" as a point of focus, ask if individuals are having concerns, difficulties or problems they wish to share. After students have stated a difficulty, attempt to process the inquiry or statement by asking the group.

- (a) If the problem is clearly defined.
- (b) What they think might be done to resolve the dilemma or frustration.

Endeavor to involve students in attempts to resolve their peer's production problems in an effort to develop or evolve greater insights into the skills of writing simulation-games.

Clarify and extend student responses, as seems necessary, by asking: "WHY DO YOU SAY THAT?" or "TELL US MORE."

In the event the class cannot produce answers that meet the needs of the individual seeking assistance, attempt to provide the necessary input.

Continue among the group until all requests for assistance have been met.

Time: Approximately one class period.

Evaluation: Students' anxiety levels about writing simulation-games have been reduced as manifested by students no longer orally seeking assistance and by non-verbal behavior.

Ask students if they feel need to confer with the instructor on this task.

Lesson Plan VI

- Objective: The purpose of this lesson is three-fold:
1. It will provide feedback (oral and written) for a student from a peer about the simulation-game he authored.
 2. It will give the student opportunity to further develop his skill in evaluating simulation-games.
 3. It will allow the student occasion to garner further insight into writing simulation-games by interacting with the author of another simulation-game.

Prerequisite: Students will have completed the assignment of writing a simulation-game and will have the product physically available for a peer to critically review.

Setting: A total class activity with students seated about the room in pairs.

Positive educational environment, i.e. comfortable temperature and light will prevail.

Materials: "Guide to Evaluating Simulation-Games" for students and instructor.

Teaching Strategies:

Write the following goals for today's lesson on the chalkboard and explain them:

1. Garner feedback
2. Develop skill in evaluation
3. Insights in writing simulation-games.

Distribute the handout "Guide to Evaluating Simulation-Games" to all students. Read the "Guide," pause--"Are there any questions about the question?"

Have the class form into pair-partners by interest, i.e. two future third-grade teachers work together as far as feasible.

Explain to the group that they are to exchange simulation-games and do the following:

1. Carefully read the simulation-game all the way through
2. Reread the item while completing the evaluation sheet
3. When both partners have completed their evaluations, share their evaluations with your partner.

Ask if these directions are clear. Clarify if needed.

Tell the group to start the activity.

Circulate among the groups.

Provide assistance where needed.

Attempt to determine by observation if students are providing appropriate feedback.

Encourage students to orally clarify and extend their written evaluations with their pair-partner.

At the close of the class period, be sure the simulation-games and related evaluations are returned so adjustments may be made if deemed necessary.

Point out that having someone play or read through a simulation-game prior to presenting it in a classroom is very important and helpful. It is similar to pre-viewing a film prior to showing it to a class.

"Did you find having someone else read your simulation-game helpful?"

Collect the completed simulation-games for your personal evaluation.

Time: Approximately one class period.

Evaluation: Students will have created and received feedback both orally and in writing about simulation-games. The completed "Guide to Evaluating Simulation-Games" will evidence a degree of evaluation skill.

GUIDE TO EVALUATING SIMULATION-GAMES

First, quickly read all the way through the simulation-game to gain a feeling or sense of what the author is attempting to do. Then, start again to read and make thoughtful assessments.

Please make an X on the rating that corresponds to your evaluation. Make appropriate entries in the comments section.

- | | |
|-------------------------|--|
| BACKGROUND | <p>1. Is the background information, i.e. type of pupil, school setting and existing social studies curriculum that the simulation-game is designed for adequate? Yes___ Limited___ No___</p> <p>Comments: _____</p> |
| PURPOSES
OBJECTIVES | <p>2. Are the educational purposes of the simulation-game clear? Yes___ Limited___ No___</p> <p>Comments: _____</p> |
| TEACHER
INSTRUCTIONS | <p>3. Are there adequate instructions for the teacher for preparing for and conducting the simulation-game? Yes___ Limited___ No___</p> <p>Comments: _____</p> |
| ACTORS | <p>4. Is there a listing of minimum, maximum and/or optimum players needed? Yes___ Limited___ No___</p> <p>Comments: _____</p> |
| ROLE
PROFILE | <p>5. Are the role descriptions (actor's goals, and resources) adequate? Yes___ Limited___ No___</p> <p>Comments: _____</p> |

- SCENARIO** 6. Is what player-actors should know (entry behavior) prior to starting the activity and how to initiate activity clearly stated? Yes ____ Limited ____ No ____
Comments:
- MATERIALS** 7. Is there a complete listing of the hardware (name tags, chips, gameboard) needed to make this simulation-game operational? Yes ____ Limited ____ No ____
Comments:
- RULES
CONSTRAINTS** 8. Are the rules and constraints for the player-actors clear and related to the issue and/or process modeled? Yes ____ Limited ____ No ____
Comments:
- INTERACTION** 9. Are the choices and moves available to the player-actors sound and consistent? Yes ____ Limited ____ No ____
Comments:
- SEQUENCE
CYCLE** 10. Is the organization of the simulation-game sequential and related to the rules, choices and moves? Yes ____ Limited ____ No ____
Comments:
- SCORING** 11. Is what constitutes achievement of goals, "winning" and/or scoring plain? Yes ____ Limited ____ No ____
Comments:
- CHANCE** 12. Are chance factors, when present, proportionate to their presence in the element of reality modeled? Yes ____ Limited ____ No ____
Comments:

- DEBRIEFING 13. Is there a debriefing guide present?
Yes ____ Limited ____ No ____
- DEBRIEFING 14. Does the debriefing offer an adequate
summary and application lesson of the
simulation-game? (Do objectives
parallel debriefing questions?)
Yes ____ Limited ____ No ____
Comments:

APPENDIX B

CLASSROOM OBSERVATION GUIDE FOR

SIMULATION-GAMES

APPENDIX B

Name of Simulation-game _____

Evaluator _____

CLASSROOM OBSERVATION GUIDE FOR SIMULATION-GAMES

Please place an X on a point on the rating scale that most nearly corresponds to what you feel based upon your observations. Enter comments in the related remarks section as seems appropriate.

You may wish to review and revise ratings as the simulation-game moves along. For example, a player may be clear as to his role at one stage or play but not at another. Attempt to reflect this in your ratings and/or remarks.

1. Was the hardware necessary to carry out the simulation-game physically present, ready for play?

All present Incomplete Couldn't tell

Remarks:

2. Were students given an adequate background of the simulation-game and role identification for the play to satisfactorily begin?

Adequate So so Inadequate Couldn't tell

Remarks:

3. Did players appear to understand their goals as set forth in the simulation-game?

Very Clearly Clearly Some Confused Most Unaware Couldn't tell

Remarks:

4. Were the rules and constraints made clear to the players?

Clear to All Some Confused Most Unaware Couldn't Tell

Remarks:

5. Was the interaction sequence cycle, i.e. who goes first, second, etc., apparently clear to the players?

Very Clear Clear To Most Unclear to All Couldn't Tell

Remarks:

6. Did scoring and/or evidence of achieved objectives seem to function for players?

Very Adequately Adequate Some Confused Very Confused Couldn't Tell

Remarks:

7. Were the chance factors, when present, proportionate to chance elements present in the reality modeled?

Yes Maybe No Couldn't Tell

Remarks:

8. Did the debriefing cover affective as well as cognitive aspects of the issue and/or process which the simulation-game models?

Very Adequately Adequate Limited Inadequately Couldn't Tell

Remarks:

9. Did the debriefing encourage players to transfer or relate the experience to other situations?

Very Adequately Adequate Limited Inadequate Couldn't Tell

Remarks:

10. Did the issue and/or process which this simulation-game attempted to deal with prove appropriate for this group of students, i.e. grade placement, maturity and curriculum-wise?

Highly Appropriate Appropriate Limited Inappropriate Couldn't Tell

Remarks:

11. Did the students seem motivated by participating in this simulation-game?

Too Motivated to Learn	Appropriately Motivated	Limited Motivated	Not Motivated	Couldn't Tell
---------------------------	----------------------------	----------------------	------------------	---------------

Remarks:

12. How would you rate the participation evidenced among the players?

High Degree Evidenced	Medium Degree	Low Degree	Couldn't Tell
--------------------------	---------------	------------	---------------

Remarks:

13. Did students manifest any sense of efficacy (being able to do something about a condition) while playing the simulation-game?

To a High Degree	Medium Degree	Low Degree	None	Couldn't Tell
---------------------	---------------	------------	------	---------------

Remarks:

14. Did the issue and/or process modeled in this simulation-game seem realistic to the players?

To a High Degree	Medium Degree	Low Degree	Not Realistic	Couldn't Tell
---------------------	---------------	------------	------------------	------------------

Remarks:

15. Did the issue and/or process modeled in this simulation-game seem relevant to the players?

Highly So	To a Limited Degree	Not Relevant	Couldn't Tell
-----------	---------------------	--------------	---------------

Remarks:

16. Did the players seem to garner feedback about their decisions while playing the simulation-game?

High Degree	Medium Degree	Low Degree	None	Couldn't Tell
-------------	---------------	------------	------	---------------

Remarks:

17. How would you rate the degree of interaction that seemed to take place during the simulation-game?

High Medium Low None Couldn't Tell

Remarks:

18. Was there evidence of peer-learning taking place during the simulation-game?

High Degree Moderate Degree Limited Degree None Couldn't Tell

Remarks:

19. Was there evidence of cooperation and/or competition taking place during the simulation-game?

High Degree Moderate Limited None Couldn't Tell

Remarks:

20. Was the issue and/or process modeled in the simulation-game overly-simplified?

Yes Maybe No Couldn't Tell

Remarks:

21. Was the simulation-game too time consuming in proportion to the amount of learning that appeared to take place?

Yes Maybe No Couldn't Tell

Remarks:

22. Did students appear to learn the "wrong thing," i.e. "War is fun"?

Yes Maybe No Couldn't Tell

Remarks:

23. Is this simulation-game too expensive in proportion to the learning that appeared to take place?

Yes Maybe No Couldn't Tell

Remarks:

24. Is this simulation-game proportionately too difficult to evaluate as a learning experience in comparison to other learning techniques, i.e. drawing a picture, reading a chapter or writing answers to questions?

Yes Maybe No Can't Determine

Remarks:

APPENDIX C

STUDENT PRE-WRITING ASSESSMENT

APPENDIX C

STUDENT PRE-WRITING ASSESSMENT

What problems, if any, do you anticipate in completing the assignment of writing a simulation-game?

Approximately how long do you think it will take
You to complete this assignment?

APPENDIX D

STUDENT POST-WRITING ASSESSMENT

APPENDIX D

STUDENT POST-WRITING ASSESSMENT

Did the problems you anticipated in completing the assignment of writing a simulation-game materialize?

Yes ____ No ____ Comments:

What other unanticipated problems, if any, did you encounter?

Explain:

How long did it take you to complete this assignment?

APPENDIX E

STUDENT PRE-TEACHING ASSESSMENT

APPENDIX E

STUDENT PRE-TEACHING ASSESSMENT

What problems, if any, do you anticipate in teaching
your simulation-game?

APPENDIX F

STUDENT POST-TEACHING ASSESSMENT

APPENDIX F

STUDENT POST-TEACHING ASSESSMENT

Did the problems you anticipated prior to teaching
your simulation-game occur?
Comment:

Were there other problems than you anticipated?
Explain:

APPENDIX G

A LOOK BACKWARD

APPENDIX G

A LOOK BACKWARD

Greetings:

Now that your simulation-game experience is complete, we would like to attempt to measure in retrospect your levels of anxiety, if any, while developing your simulation-game.

Please place a mark on the following scales indicating degrees of anxiety you may have felt at various stages of the simulation-gaming.

1. What level of anxiety did you feel while you were playing the Labor-Management simulation?

none	some	medium	great	high
------	------	--------	-------	------

Remarks:

2. What level of anxiety did you feel when the assignment to develop a simulation-game was made?

none	some	medium	great	high
------	------	--------	-------	------

Remarks:

3. What level of anxiety did you feel while you were attempting to identify an issue and/or process on which to focus your simulation-game?

none	some	medium	great	high
------	------	--------	-------	------

Remarks:

4. What level of anxiety did you feel while you were writing your simulation-game?

none	some	medium	great	high
------	------	--------	-------	------

Remarks:

5. What level of anxiety did you feel while observing students prior to teaching your simulation-game?

none	some	medium	great	high
------	------	--------	-------	------

Remarks:

6. What level of anxiety did you feel while teaching your simulation game?

none	some	medium	great	high
------	------	--------	-------	------

Remarks:

APPENDIX H

SOCIAL STUDIES METHODS FOR

ELEMENTARY GRADES

APPENDIX H

Education 325D

SOCIAL STUDIES METHODS FOR
ELEMENTARY GRADES

Please respond to the following:

Name _____ Phone _____

Campus Address _____

Academic major outside of Education _____

_____ Overall Approximate Grade Point _____

Numbers of hours carried this quarter _____

Number of hours employed this quarter _____

Approximate number of hours completed in the following
social science disciplines: Anthropology _____

Economics _____ Geography _____ History _____ Sociology _____

Pol. Sci. _____ Psy. _____

What grade level are you most interested in teaching?

Have you participated in simulations and/or educational
games? Yes _____ No _____

If yes, please list their titles and indicate the circum-
stances under which you participated in each simulation
and/or game (Use back if necessary).

Based on reading, conversations about or actual partici-
pation in, how would you rate your knowledge of simu-
lation? High _____ Medium _____ Low _____ None _____

From what sources have you learned about simulation?

Aside from your level of knowledge, how would you rate your interest level in simulation? High ____ Medium ____ Low ____ None ____

Please explain your rating: _____

As well as you can, please state your definition of simulation: _____

How would you rate your interest in creative writing? Please place a check on the line below that indicates your level of interest.

High	Moderate	Negative	No
------	----------	----------	----

Given what you know of your own abilities (SAT Scores and GP) in the Quantitative and Verbal Areas, how would you rate yourself?

Quantitative Skills	High	Medium	Low
---------------------	------	--------	-----

Verbal Skills	High	Medium	Low
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APPENDIX I

OBSERVATION SCHEDULE

APPENDIX I

OBSERVATION SCHEDULE

Application of Model College Classroom

Monday Jan. 17	Introduction to simulations and gaming Begin playing "Labor-Management Simulation"
Wednesday Jan. 19	Complete playing "Labor-Management Simulation"
Friday Jan. 21	Introduction of definitions and samples of simulation, games and simulation-games (Hand out examples to be analyzed to determine component parts by Monday)
Monday Jan. 24	Report and discuss analysis findings. Review definitions. (Homework: by Wednesday, select social studies concepts and/or generalizations that seem appropriate for the grade level you want to teach.)
Wednesday Jan. 26	Review concepts and generalizations selected. Outline the steps of how to write a simulation-game. (Assignment: Write a simulation, game or simulation-game appropriate for the grade level you want to teach. Due Wed., Feb. 2.)
Friday Jan. 28	Questions and Answers about simulation production.
Wednesday Feb. 2	Small group play and analysis of student-produced simulations.
Friday Feb. 4	Simulations, game and/or simulation-games returned and discussed.

APPENDIX J

SUBJECT A'S PRODUCT

APPENDIX J

SUBJECT A'S PRODUCT

(Unedited)

Buy It--You'll Like It

Background	This <u>simulation</u> would be best suited to the levels of grades 4 or 5. It is a basic concept and is non-controversial. Therefore it may be presented to any type of pupils. The simulation would simply be used to reinforce Economic Components of most existing Social Studies curriculums.
Objectives	<u>Buy It--You'll Like It</u> provides an opportunity for a group to actually experience the aspect that consumers buy a certain product for different reasons, that consumers do not buy a certain product for different reasons, and that a seller of a product uses varied approaches in selling a product.
Teacher Instructions and Sequence Cycle	Divide and separate your group into 6 groups. Explain to the groups as a whole that they are going to pretend that they are operating in a single seller, multiple consumer market. The interaction consists of dialogue between the seller and the various consumers. Mechanically stated, the candy bars and the money <u>MAY</u> be exchanged. The students are told in their role cards to carefully observe the interactions of every group. This allows them to be able to hopefully enable them to actively participate during the debriefing session in a more intelligent manner. Assign each group a role. There are 3 role cards for each group. Give them the first role card immediately and the sum of 50¢ in play money to each person in the consumer groups. This is the only amount they are to receive for the entire simulation. Tell the pupils to read their role cards carefully. Then ask each group independently if there are any questions pertaining to the role that they are to play.

Chance Factor	To determine the order of play among the consumer groups as to actually interact with the seller, have a representative from each group draw straws. The consumer group with the longest straw goes first and the others follow in order of the length of straws. This is done to achieve a random order because different orders can obtain different results. Now you should be ready to begin. Have the students complete the first cycle. Within the consumer groups themselves, each person arrives at his own decision as to whether or not they buy the candy. They can and should talk it over within the group while they are waiting for their turn to confront the seller. As the teacher, you should keep a running tally on who does and who does not buy the product, noting any significant interaction for debriefing purposes. Try to remain passive but if interaction is sluggish, encourage and direct as needed.
Chance Factor	When the first cycle is completed, distribute the second round of role cards and repeat the cycle including the drawing of straws. This will enhance the reality of the order in which consumers approach the seller. Continue to tally the score, encourage interaction, and note significant interaction. Finally, distribute the role cards for the third round and repeat the cycle again. (Note: Before each cycle, remind the players to follow the roles as closely as possible.)
Actors	1 seller 5 different types of consumers minimum number of players--6 maximum number of players--18 optimum number of players--12
Materials	play money--50¢ per consumer slips of paper to represent candy bars straws--to determine the order of play
Interaction	Briefly, the seller is aggressive who changes tactics for each type of consumer and their roles are: one group that always buys, one group that never buys, and two groups with open-ended decisions, and one group who completely makes up his own mind.

Rules and Constraints	The seller and the various consumers must follow the role profile cards to the letter.
Scoring	There is no real winner or loser in this simulation. However, the seller might be led into thinking that there is supposed to be a winner because he is told to sell as many candy bars as possible, but in reality this is done only to gain the proper effect.
Debriefing	The following questions may be used to guide a discussion about the ideas presented in the simulation. One must note that this debriefing period will vary according to the results that you have compiled from your tallies and notes. Thus, the questions below are samples and they are not meant to be an all inclusive list. (Note: The teacher should write on the black board, for the whole group to see, the tally for each cycle. This will obviously serve as data for the debriefing discussion.) 1. What was the purpose of having 5 different types of consumer groups in the simulation? 2. Why did the consumer groups vary in buying patterns? 3. Can you extend the various consumer roles to a real life situation where some people always desire a product while others always reject it while still others are indifferent? 4. Can you give real examples of how others besides the seller can influence a person's willingness or non-willingness to buy? 5. What accounts for the "hard sell" tactics of the seller? 6. What did the seller do to sell his product to people with different attitudes or buying patterns. 7. Can you see the significance that this simulation can have on you as a buyer in real life?

Group 1 Consumer

First Cycle Imagine that you are actively participating in organized sports after school.

Your coaches are really great and want you to perform to the best of your ability. To do this he has suggested some things for you to do to get in better physical shape and they are as follows. Get plenty of sleep, perform certain exercises to build the body, and eat the proper foods.

Walking home after practice, you and your teammates will happen to pass by the Happy Days Candy Store. You really enjoy their product and now it is up to you to decide if you will keep eating candy bars or if the coach's advice about eating proper foods means no candy. Then again would one candy bar hurt? The choice is up to you.

CUT

Second Cycle Hello again! It seems that you and your teammates are invincible on the football field! You have won your first two games so far this season and the coach says he is proud of you all. If you did not purchase a candy bar on the first round maybe you would like to do so on this round as a reward for being victorious on the gridiron. The choice is still up to you.

Third Cycle Bad news I'm afraid. Your team lost in its last outing. Could it be that you are getting out of shape because of eating sweets? If you have not been eating any candy as yet you surely do not want to start now do you? The choice is still up to you.

Group 2 Consumer

First Cycle Imagine that you are a person who became violently ill after over-eating candy bars and since then you can hardly look at one much less eat one. After school you and your friends who have had the same experience will pass by the Happy Days Candy Store. You will be approached by a member of the store and under no conditions are you to buy candy for yourself.

CUT

Second Cycle Hello again. You are to assume the same role you had before. Is the person from the candy store putting on too much pressure for you to buy his product? If so tell him that you will not stand for it and that if he persists that you will openly encourage others who buy his product to do the opposite--not buy it. Be sure to note his reaction.

Third Cycle Same as the Second Cycle.

Group 3 Consumer

First Imagine that every day after school you and
Cycle your friends have to pass by the Happy Days Candy
 Company. When it comes to buying sweets you can
 take it or leave it.

 The only thing to consider is the question of
 wanting to save your money for something else or
 not. The choice is up to you.

CUT

Second Same as the first cycle.
Cycle

Third Same as the first two cycles. This time, how-
Cycle ever, there is a movie in town that you want to
 see and it costs 25¢. By now, if you do not have
 35¢ or more then you may not even want to con-
 sider buying candy. The choice is still up to
 you.

Group 4 Consumer

First Imagine that you are a super active, growing
Cycle student. You eat three big square meals a day
but that does not seem to be enough to fill you
up during the day. To make matters worse you have
a big sweet tooth.

After school you and your friends will pass by
the Happy Days Candy Store. You will not be able
to pass by without buying at least one candy bar.
Today you have 50¢ in coin and you will be getting
your allowance for the week in two days so you
feel that you can afford to splurge. The exact
number of bars you buy today is up to you.

CUT

Second Hello again! Continue to play the same role
Cycle as before only by now you have decided that
because tomorrow is allowance day so you can
afford to spend all the rest of your money on
candy bars.

Third Bad news I'm afraid. Your parents have not
Cycle given your next allowance because you forgot to
remind them. You would like to buy some candy
but because you have no money this cannot be done.
Explain the situation to the seller.

Group 5 Consumer**First
Cycle**

Imagine that this spring you are going to a formal party where you will be wanting to wear your best clothes. There seems to be a problem however because you are getting to the point that you can barely fit into your "dress up" clothes.

After school you and your friends will pass by the Happy Days Candy Store. You really enjoy their product and now it is up to you to decide if you will keep eating candy bars or if you might start cutting down on sweets so you can fit into your best-looking clothes. The decision is yours to make. Then again, the spring formal is still a long way off.

CUT

**Second
Cycle**

Play the same role that you played in the first cycle. Today might be a good day to buy a candy bar however. One little old candy bar cannot hurt that much, can it? Again the decision is yours to make.

**Third
Cycle**

It seems that lately your hunger is getting the best of you at times. Today in school you ended the day in gym and all that exercise has made you more hungry than usual. This feeling has become almost unbearable and you are now considering what is more important, your immediate feeling of starvation or getting into the dress. Again the decision is yours to make.

Group 6 Seller

First Cycle Imagine that you are employed at the Happy Days Candy Store. It is located near a school and a good time of the day for business is when school is dismissed.

 It is your job and goal to sell as many candy bars as possible. It is your role as a good salesman of candy to not only have your product available, but to actively encourage people to buy your product. Remember, as a good salesman you must realize that people are different and that you will want to use different approaches on different people. Be sure to put up a fight if a person is reluctant and do not take no for an answer right away.

CUT

Second Cycle How is it going? Are you trying to be creative in your "sales pitch?" It might be helpful to play up your product for this round. This might include telling your customers the following: it is cheap, it tastes so good, it is loaded with sugar and full of energy, you can save the wrappers to obtain a prize, and so on. Continue on as before.

Third Cycle How is it going now? Continue on as you have previously.

APPENDIX K

SUBJECT B'S PRODUCT

Component Parts of Eskimo Simulation Game

(Unedited)

Purpose of game or objective--The student, after playing this game will be able to point out the various aspects of the maturation process in Eskimo life and be able to relate these events to our own culture.

Scenario--The game uses a game board which simulates the growing process in an Eskimo child's life. The board moves in a counter-clockwise procession with six different openings for the various elements of the maturation process. Each child assumes the role of an Eskimo child who must enter each "opening" (education, social maturation, achievement, responsibility, economic independence and adulthood) to gain the skills necessary to attain adulthood. A diagram of the board and the contents of the game squares appears in the following pages.

Key Play Actors--Each of the two to six children who play this simulation game assume the role of an Eskimo child trying to gain the status of adulthood.

Materials--Game materials consist of a game board, dice (to facilitate movement), and a record sheet for each child to tabulate his accomplishments. The game board simulates actual events which take place in an Eskimo child's lifetime which must be overcome or achieved. The dice simulate the actual chance factors which do occur in reality. Not only do the dice facilitate movement around the game board, but it is also hoped that the children will note that not all decisions made in life are dependent on clear-cut planning, at times chance governs the decisions we choose to make. Scoring sheets enable each child to keep an accurate record of the accomplishments that he has made. The "winning of the game" is then determined by the time element involved in achieving certain goals they specify for themselves.

Actor Player Goals--Because each society expects their children to accomplish certain objectives before they are granted the privileges of adulthood, so must these game players achieve objectives before they may be declared game winners. Each child must have acquired at least two education cards, three social maturity cards, three achievement cards, two responsibility cards and at least two job cards before he may enter the row to the winners circle.

Actor Player Resources--By landing on the appropriate square in the appropriate box players can attain the skills necessary to gain other skills and also to attain adulthood. They must write on their score sheets the skills they have attained because many tasks require pre-requisite skills. Dice are used to facilitate movement around the game board, and certain squares on the board also facilitate movement.

Decision Rules--After arbitrarily selected the order of the players, each player selects a die, rolls it, and moves that number of squares counterclockwise on the board. He may enter any box he wishes and may choose the list the accomplishments he gains by entering the appropriate boxes. Students are required to gain a certain number of skills from each area (as specified previously) before they can enter the winner's row. It should be noted that it is wise for players to review the game board to determine an individual strategy before beginning the game. This will undoubtedly eliminate unnecessary false starts and aggravation when a student realizes that he wants a job, but does not have the pre-requisite tasks or skills necessary for this job.

Players may circle the board as many times as they choose, acquire as many skills as they choose, or refuse skills. The winner, though, shall be determined by that player who does achieve all the necessary skills and enters the winner's box first. The winner's box is that square labeled ADULT.

Interaction Sequence--The players take turns moving, as mentioned previously. It must be noted that each square mentions a particular aspect of Eskimo life (for learning purposes) and that many squares constitute rewards and punishments by gaining or losing turns. Areas on the board labeled Igloo, Anchorage, General Store and Lake are generally designated as movement areas for the players, igloo being home base.

External Constraints--Actors may not move clockwise. Actors may not refuse to obey movement directions on game squares, though they may decide for themselves that a certain skill they have acquired by landing on the square is not necessary and refuse to enter it on their score sheet.

Actors may not enter the winner's row until they have all skills necessary.

Actors may not conclude the game until first, second, and third winners have been chosen. (This way I hope to extend the learning process for more students for a longer period of time.) Actors may not trade skills with the other players.

Scoring--The first winner will be determined by the first player to enter the ADULT square with all necessary skills--at least two education cards, three social maturity cards, three achievement cards, two responsibility cards, and at least two job cards. A second and third place winner will also be chosen.

Hardware--Gameboard, two to six place marker, dice, scoring cards and pencils.

Debriefing Topics

1. Compare comparable skills, accomplishments that the Eskimos have with American children. For example, a mature Eskimo boy is given a .22 rifle. What is a mature American child given? Also compare customs, achievements and economic goals.
2. Why can one player have totally different skill cards than another player and still have the same chance to win the game? Relate this to real life activities.
3. Why did one student finish before the rest? In real life do some of us mature faster than others?
4. Why were dice used to move the players? How are our decisions made in reality? Do we also make our own decisions? What part does chance play in our everyday lives?
5. What type of things were used as punishments or rewards in Eskimo culture? What do American parents use as punishments and rewards? What was the purpose behind some of the punishments? i.e. why were you punished for ipiak (playing in the water), American children are not punished so severely for playing in the water.
6. Why did so many of the achievement boxes have pre-requisites? In reality do we have prerequisites placed on our achievements?
7. Why were you given a second chance to go around the board?
8. Why did some players have more skills than others? Is this beneficial or harmful?

Game Board

1. Igloo
2. You have reached your fifth birthday and no longer must stay near the house--take four steps in any direction.
3. Blank
4. You have been accepted in the BIA school. Enter here.
5. Blank
6. Summer thaw strands you at the lake. Go there and lose a turn.
7. Your inukshuk falls down. Lose a turn rebuilding it.
8. You are your grandfather's namesake--as a token of his love, take a trip anywhere on the board.
9. Blank
10. The high school counselor has arranged a job interview. Go directly to the job square.
11. Your fur pelts sell high. Take a trip anywhere on the board.
12. Enter here to earn credits in social maturity.
13. Blank
14. The caribou hunt is beginning, go directly to the lake.
15. The Inyakuns (little people) made you catch cold. Return home to recover.
16. Your high school plans a trip to Anchorage, return home to pack.
17. You pakak (got into things you shouldn't). Lose a turn.
18. General Store.
19. Blank
20. Nanook (the beer goddess) gives you good luck--move anywhere on the board you like.
21. The kayak has ripped. Return to Anchorage for necessary tools to repair it.
22. If you have your high school diploma--you may go directly to job square.
23. Return to education square if you require more education.
24. Enter here for achievement credits.
25. A car accident in the city, careless driving, lose a turn.
26. The town has been gossiping about you. Lose a turn as punishment.
27. You left your fishing spear at the lake. Go back for it.
28. Blank
29. Because you have carried out your responsibilities well you are being sent to your uncle's for a visit. Take a trip anywhere on the board.

30. You drank too much at the Karigi (dance hall) return home.
31. Anchorage
32. Blank
33. You showed great cooperation on the hunting trip--take an extra turn.
34. You have lost your electricity because of a snow-storm. Lose a turn.
35. The store has your special order of gunpowder. Go pick it up.
36. Blank
37. You've spent all afternoon playing haku and not working. Lose a turn.
38. You have received a merit rating on your job. Take a trip anywhere on the board to celebrate.
39. Record fish catch--take a trip to the general store.
40. Blank
41. Enter here to find a job.
42. It is winter and fishing is bad--go back three spaces.
43. Blank
44. Spent too much time in the karigi--lose a turn.
45. The missionaries send you to a church school in Anchorage. Return to Anchorage square.
46. Your whale harpoon broke--lose a turn to repair it.
47. Blank
48. Lake
49. You have won an ivory carving contest, take a free trip anywhere.
50. Blank
51. Your parka needs mending. Take it home to repair it.
52. You've forgotten to do your household chores--return home to finish chopping the wood.
53. Blank
54. Enter here to finish the game.
55. You take a summer job in the mines. Go to job square.
56. Blank
57. You ipagak (played in the water). Lose one turn.
58. Blank
59. It's winter now and you must stay indoors. Lose a turn.

Education

- 1 a. Pass 6th grade. Learn to read and write.*
- b. Pass English language skills test.*
- c. Take three month high school extension course in business.*
- d. High school diploma.*
- e. Accepted at AFB flight school for mechanics or pilots.*

- f. The U.S. Armed Forces accepts you as a G.I.
- g. Completes mechanics course in Anchorage.
- h. Finish college prep classes. You are accepted at University of Alaska.
- i. Accepted at Meteorologist's school.*
- j. You've learned Archery, fishing and hunting to the Umiak's satisfaction.*
- k. College degree, B.A. or B.S., your choice.

Social Maturity

- 2 a. You win at Putigarok (tag). Must have at least sixth-grade education.*
- b. You have reached adolescence--you now have your own bed--you must have at least a sixth-grade education.*
- c. You show good competitive spirit in wrestling match.*
- d. Happy 10th birthday. Your father gives you your first .22 rifle. You must have hunting skills.*
- e. You have been selected as leader for the whale festival in the spring--must have hunting skills.*
- f. Voted valedictorian--must have high school diploma.*
- g. You complete cadet training with the Armed Forces--must have been accepted as a G.I.*
- h. Your first date. Must have high school diploma.*
- i. You campaign in your first presidential election. Must have college degree.*
- j. You volunteer to repair the mayor's car. Must have mechanics skills.*
- k. You are made godparent for your older brother's first baby.*

Achievement

- 3 a. Elected Student Government President. Must have at least sixth-grade education.*
- b. Caught first seal. Must have hunting skills and rifle.*
- c. Finally you have learned to butcher anything anybody might bring home.*
- d. Accepted as an apprentice on a whale boat. Must have hunting skills.*
- e. You make your first TV weather report. Must have meteorologist training and high school diploma.*
- f. The Tanniks (white men) missionaries, take you on your first trip to Juneau. Must have at least sixth-grade education and English skills.*
- g. You serve as an interpreter for English travel group. Must have English skills.*
- h. You serve as hunting guide for Sportsmen. Must have English and hunting skills.*

- i. Missionary church- elects you elder.*
- j. Kill your first caribou. Must have hunting skills.*
- k. You receive certificate of merit for success in mechanics class. Must have mechanics skills.*
- l. You win medals of honor in Armed Forces. Must be accepted by AFB or Armed Forces.*
- m. Chosen to be Umiak--group hunting leader. Must have hunting skills.*
- n. Make Dean's list. Must have college degree.*

Responsibility

- 4 a. You buy your first house. You must have a job to pay for the mortgage.*
- b. You marry. You must have at least two social and two achievement credits.*
- c. You re-enlist in the AFB or Armed Forces. You must have been accepted.*
- d. You are elected to the town council. You must have at least two achievement credits.*
- e. You now have a car to make payments on. You must have a job.*
- f. Your father helps you build your own igloo.*
- g. Your family needs you to do the hunting this winter. You must have hunting skills.*
- h. Blank
- i. To maintain your work as a church elder you must have at least two achievement credits.*
- j. Blank
- k. You are a new parent. You must have a job.*

Economic Independence

- 5 a. Coal Mining Job--you must have at least a sixth-grade education.*
- b. Accepted in DEW Radar Maintenance Crew. Must have high school diploma and speak English.*
- c. You have enough capital to buy your own whale boat-- must have hunting experience and boat apprenticeship.*
- d. Job as clerk in the town store. Must have high school diploma and business extension course.*
- e. Teacher in the local BIA school. Must have college degree and speak English.*
- f. Air Line Pilot. Must have schooling necessary.*
- g. Traditional Hunter. Must have hunting skills and .22 rifle.*
- h. Weather Observer for the Armed Forces. Must have high school education, speak English and be in the service.*
- i. Oil Company worker. Must speak English, pass high school and have business course.*

- j. Air Line mechanic. Must speak English, have mechanic skills and high school diploma.*
- k. BIA investigator. Must speak English and have college degree.*

Finish Area

- 6 a. Remember, you must have at least two education cards.
- b. Blank
- c. You must have at least three social maturity cards.
- d. You must have three achievement cards.
- e. You must have two responsibility cards.
- f. You must have at least two job cards.
- g. You are now an adult.

1	59	58	57	56	55	54		53	52	51	50	49	48
2						6a							47
3						6b							46
4	1a	1b	1c	1d		6c			5h	5i	5j	5k	45
5				1e		6d			5g				44
6				1f		6e			5f				43
7				1g		6f			5e				42
8	1k	1j	1i	1h		6g			5d	5c	5b	5a	41
9													40
10													39
11						3g	3h						38
12	2a	2b	2c	2d		3f	3i		4h	4i	4j	4k	37
13				2e		3e	3j		4g				36
14				2f		3d	3k		4f				35
15				2g		3c	3L		4e				34
16	2k	2j	2i	2h		3b	3m		4d	4c	4b	4a	33
17						3a	3n						32
18	19	20	21	22	23	24	25	26	27	28	29	30	31

APPENDIX L

SUBJECT C'S PRODUCT

(Unedited)

INTRODUCTION

This game is intended for a group of 4th grade students at Pinecrest Elementary School in East Lansing. These children are involved in the "Man: A Course of Study" social studies program and are soon to begin the study of baboons. For all practical purposes, this exercise should be considered as a simulation. Gaming only comes in as far as a form of competition between the two groups of actors.

OBJECTIVES

This exercise is designed for the purpose of reviewing and testing the materials previously studied concerning baboons, and also for providing opportunities for the students to relate the social interaction of these animals with that in their daily life. The testing is not in the pencil and paper form, so the children will not feel apprehensive and the teacher can still gain valuable information as to the effectiveness of her instruction.

GAME SUMMARY

The large group of students is divided into three smaller groups. Two of these groups consists of six players, each one representing a specific group found in a baboon troop. The third group (approximately 15-24 players) will evaluate the performance of the acting groups. Each group of six is given a card which describes

a situation occurring in a baboon troop during daily activities. The groups are then given time to discuss among themselves the way in which this situation could be acted out. The presentations are made simultaneously and the third group is responsible for providing feedback as to the accuracy of the presentations. Mimeographed check-lists will be distributed to the evaluating group before the presentations begin so that this group will have information to base their evaluation upon. The acting groups will not see this information. Their reference material will consist of the books that they read in class (which will be available for them to look over in preparing their presentations) and the previous discussions and activities in which they have participated.

The evaluating group also decides which group is the winner. The winning group is the one that makes the most accurate presentation using the check-list as the criteria.

After the performance and discussion of a situation has been completed, new groups are then formed and another situation is enacted. This gives each player a chance to be both an actor and an evaluator. Some time limits should be set in order to keep the action running smoothly. Two to three minutes should be given to the acting groups in order to decide how to present their situations and the evaluating groups can be reading over

the check-lists. About three minutes will be necessary for the groups to act out their situations. The discussion and voting should then take about five minutes. Children must be able to give valid reasons for their votes and should be given as much opportunity as possible to carry on the discussion themselves.

Once the acting begins, no talking is permitted. The only communication between the actors should be communication in the manner of baboons.

Questions for Discussion

1. Were these situations accurately represented? Why or why not?
2. Which group made the best presentation?
3. Which character(s), if any, were not behaving in the correct manner, and why?
4. Can you think of any other ways that this situation could have been presented?
5. Does this situation remind you of anything that happens in your lives?

MATERIALS

Cards on which the situations to be dramatized are described

Name tags to show which troop members that each player is representing

Books on baboons for actor reference

(These books, Baboons, Baboon Troops, and Baboon Communication are a part of the MACOS series.)

Mimeographed check-lists for evaluating group

PLAYERS

Teacher

Two groups with six members apiece--each member
represents one of the following: adult males
adult females
subadult males
juveniles
older infants
younger infants

Group of 15-24 to serve as evaluators

PREPARATION

Teacher should discuss with the students the different roles which are present in the baboon troop and the ways in which interaction occurs. Communication among baboons should also be reviewed since it will be necessary in the acting out of the various situations. The teacher should at this time also, go over the basic rules of the game with the students.

SITUATION #1

The baboon troop is rapidly moving across open country towards a favorite feeding spot of theirs when they run into a group of hungry wildcats. How does the troop react?

HINT: Look over pages 13 and 22 of the Baboon Troop.

Remember to include baboon communication.

SITUATION #2

Act out what a baboon troop looks like and what it does while it is at rest.

HINT: Look over pages 11 and 12 of The Baboon Troop.

Baboons might also be helpful.

Remember to include baboon communication.

SITUATION #3

After traveling together, the baboons reach a place where they stop to eat. But--there is not enough food to go around. How does the troop react? Who is going to eat?

HINT: Look over page 18 of The Baboon Troop.

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ADULT

MALES

ADULT

FEMALES

SUBADULT

MALES

JUVENILES

OLDER

INFANTS

YOUNGER

INFANTS

CHECK-LIST

SITUATION #1

The baboon troop is rapidly moving across open country towards a favorite feeding spot of theirs when they run into a group of hungry wildcats. How does the troop react?

WHAT TO LOOK FOR:

1. Are the adult males at the center of the troop?
2. Are the weaker troop members near the adult males?
3. Are the young adult males running ahead of the group?
4. When the danger was spotted, did one baboon bark an alarm?
5. Are the baboons expressing their feelings?

Examples: Are they baring their teeth and raising their tails because they are frightened?

Are they standing on their hind legs before running away?

6. Did the females and children run to safety?
7. Did the males move out to meet the danger?

CHECK-LIST
SITUATION #2

Act out what a baboon troop looks like and what it does while it is at rest.

WHAT TO LOOK FOR:

1. Are the adults sitting together?
2. Is grooming taking place?
3. Are the juveniles running around playing?
4. Are the infants staying close to the mothers?
5. Are females feeding the infants?
6. Are the baboons communicating?

CHECK-LIST

SITUATION #3

After traveling together, the baboons reach a place where they stop to eat. But--there is not enough food to go around. How does the troop react? Who is going to eat?

WHAT TO LOOK FOR:

1. Did the younger males arrive at the spot first?
2. Did they leave the food for the adult males?
3. Did the other troop members wait until the adult males ate before looking to see if there was more food?

