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An Environmentally-Structured Simulation for Crisis Training of College and University Administrators

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AN ENVIRONMENTALLY-STRUCTURED SIMULATION FOR
CRISIS TRAINING OF COLLEGE AND UNIVERSITY ADMINISTRATORS

by

Eugene A. Scanlan

A Dissertation Submitted to the Faculty of the
Graduate School of Loyola University
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>ACKNOWLEDGMENTS</th>
<th>ii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. ORGANIZATIONS, ADMINISTRATIONS, AND CRISIS: A REVIEW OF THE LITERATURE</td>
<td>6</td>
</tr>
<tr>
<td>Introduction to the Chapter</td>
<td></td>
</tr>
<tr>
<td>Some Principles of Organization and Administration</td>
<td></td>
</tr>
<tr>
<td>Behavioral Elements of Organization and Administration</td>
<td></td>
</tr>
<tr>
<td>Crisis Situations and Organizational Response</td>
<td></td>
</tr>
<tr>
<td>III. SIMULATIONS</td>
<td>33</td>
</tr>
<tr>
<td>Introduction to the Chapter</td>
<td></td>
</tr>
<tr>
<td>Historical Development</td>
<td></td>
</tr>
<tr>
<td>Theoretical Aspects</td>
<td></td>
</tr>
<tr>
<td>Models</td>
<td></td>
</tr>
<tr>
<td>Game Design: Some Considerations and Steps</td>
<td></td>
</tr>
<tr>
<td>Advantages and Disadvantages</td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td></td>
</tr>
<tr>
<td>Environmental Structuring: A New Technique</td>
<td></td>
</tr>
<tr>
<td>IV. PROCEDURE</td>
<td>107</td>
</tr>
<tr>
<td>Introduction to the Chapter</td>
<td></td>
</tr>
<tr>
<td>The Model</td>
<td></td>
</tr>
<tr>
<td>The Crescent University Simulation</td>
<td></td>
</tr>
<tr>
<td>The Morningside University Simulation: Development, Playing, and Results</td>
<td></td>
</tr>
<tr>
<td>ESSIMU-I</td>
<td></td>
</tr>
<tr>
<td>V. SUMMARY AND CONCLUSIONS</td>
<td>148</td>
</tr>
<tr>
<td>Purpose</td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td></td>
</tr>
<tr>
<td>Findings and Limitations</td>
<td></td>
</tr>
<tr>
<td>Some Implications</td>
<td></td>
</tr>
<tr>
<td>APPENDIX I: Crescent University Simulation</td>
<td>159</td>
</tr>
<tr>
<td>APPENDIX II: ESSIMU-I: Questionnaire</td>
<td>164</td>
</tr>
<tr>
<td>APPENDIX III: ESSIMU-I: Players' Handbook (Sample)</td>
<td>187</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>199</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Historians of higher education looking back upon the past decade will probably characterize it as "The Era of Confrontation" or "The Era of Campus Crises." Campus after campus reported "incidents" ranging from rallies, teach-ins, etc., to major events involving violence, damage to property, and even death.¹ The per cent of schools reporting incidents (with a total of 1569 schools reporting) rose from 6.1% in the period from 1967-1968 to 32.4% in the period from May 1st to August, 1978.² In the light of such statistics the American Council on Education's Committee on Campus Tensions summarized the outlook on campus disruptions by saying "... most persons were uneasy about what the future may hold."³ Thus, prospects seem likely for continued unrest on the campuses.

Past campus crises have been extensively studied and their many dimensions have been subjected to careful examination. Possible causes of such events have been delineated by


²Ibid.

many, while others have concentrated upon long-range changes needed in the purposes, structure, and functioning of our institutions of higher education. Increasingly, however, some of the blame for the forms and extent of campus disruptions, especially in terms of the management of campus crises, has been placed at the feet of the college and university administrators themselves.¹

While this might be characterized by some as a recent tendency of critics of higher education, its origins can easily be traced back to the first major campus crisis of the past decade, Berkeley, when Philip Selznick charged that "... arbitrary administrative action lay at the base of the controversy, and was fuel to its flames at every step."²

Frederick de W. Bolman, Jr., echoed this charge and added a new dimension to the already-forming controversy when he stated that "Administrators have all too often developed reflexive rather than reflective approaches to their tasks and to the total enterprise of higher education."³


Further evidence that administrators are considered to play a key role in campus crises is presented in the most recent, and possibly the most detailed study of campus unrest in this country, the Report of the President's Commission on Campus Unrest. Among its major recommendations is found the following:

Universities have not adequately prepared themselves to respond to disruption. They have been without suitable plans, rules, or sanctions. Some administrators and faculty members have responded irresolutely. . . . [The] lack of appropriate organization within the university has rendered its response ineffective. The university's own house must be placed in order. . . . Every university must improve its capability for responding effectively to disorder. . . . It must clearly understand the options available to it and be prepared to move from one to another if it is reasonably obvious that an earlier tactic has failed.1

In the quotation cited it will be noted that not only are criticisms leveled at college and university administrators, but also some general recommendations are made as to what such administrators should do to anticipate such crises. In view of all of the above it is obvious that, increasingly, administrators must be prepared to deal with campus crises and to effectively understand and manage events before all control is lost and the particular campus is torn apart by the strife. And yet, as has also been pointed out, college and university administrators all too often are ill-prepared in terms of their training and decision-making ability to deal with such events.

What can be done to remedy this critical problem of

1"Texts of a 'Call to the People' and Recommendations of the Campus Unrest Panel," p. 66.
the administrators' need for crisis management training? How can present and future college administrators receive experiences that will enable them to assume needed leadership in resolving a campus crisis? How can the needed expert administrators be developed?¹

Many approaches have been taken to providing answers to these questions, including in-service education programs and the use of case study techniques.² While such approaches do provide the administrator with some new insights and information, they are too infrequently utilized and too often fail to provide the necessary experience for the administrator who may be faced with a campus crisis. Increasingly it is important for administrators to be provided with training experiences which, by their very nature, will better enable them to make the necessary decisions to successfully resolve a campus crisis. As has been frequently pointed out, "... it is important for an administrator ... to have experience with the reality of the situation with which he will be confronted."³


But how can this be done? More precisely, how can college and university administrators receive significant, realistic, but "safe" (in terms of consequences of decisions) experiences that will better enable them to deal with possible campus crises?

Purpose of the Study

As administrators themselves are aware, possible answers to such problems can often be found in the methodology of one or several of the social sciences.¹ One such methodology recently used by several social sciences is "simulations" or "instructional gaming." The terms and concept of simulation will be discussed very extensively in Chapter III. However, it is sufficient to point out here that the author believes simulation technology offers one answer to the problem of crisis training in that it enables college administrators to experience simulated campus crisis situations that will better prepare them for actual situations by increasing their awareness of the dimensions involved. The central purpose of this dissertation will be the construction, test-playing, and evaluation of such a simulation.

CHAPTER II

ORGANIZATIONS, ADMINISTRATIONS, AND CRISIS:
A REVIEW OF THE LITERATURE

Introduction to the Chapter

Because this study is concerned with the application of a methodological technique to a particular area of concern, it is important to have an overview of the literature of this area. This chapter therefore is intended to present a review of literature related to three particular topics: 1) some principles of organization and administration; 2) behavioral elements of organization and administration; and 3) crisis situations and organizational response. These three topics are relevant to the theoretical aspects, construction, and playing of the simulation for crisis-training of college administrators; and much of the material presented here is either explicitly or implicitly incorporated into the simulation (as will be seen in Chapter IV). In the past, little attention has been given by higher education to the elements of administration, both good and bad; what makes a "good" administrator; and how these administrative talents can be developed.¹ This lack of attention has resulted in a very limited amount of

¹Bolman, "Can We Prepare Better College and University Administrators?", p. 2.
literature on theoretical, conceptual, and methodological elements of the administration of higher education. Increasingly, higher education is utilizing materials and approaches developed for related areas and is finding that such materials and approaches can provide fresh viewpoints for study.¹ Much of the material presented in this chapter is drawn from resources not specifically concerned with higher education. Yet, the material provides a fertile field for research and development of applications, as well as the development of a firmer understanding of organizations and administrations in higher education.

Some Principles of Organization
and Administration

In examining principles of organization and administration it is important to point out that the study of organization and administration is not yet a science, but rather an art.² Because of this lack of data most principles of organization and administration are not empirically-based but are usually generalizations or low-level hypotheses ("guesses") developed from personal experience or a review of the literature, such as is presented here. Specific, testable hypotheses can be developed from such principles, but relating operational


definitions utilized in such hypotheses directly to stated principles is usually an impossible task.

Harold W. Stoke provides a unique insight for the development of principles for the administration of higher education by viewing the administrative process in terms of several other fields, including economics, business, and political science.¹ His emphasis is upon approaches which are concerned with concepts of meaning and purpose rather than administrative operations. For example, if the organization of higher education is viewed as political science, the problems of higher education can be interpreted in terms of the classic problems of political science including conflicts of authority and freedom, "checks and balances," control, representation, and influencing decisions.² From this perspective statements can be made, such as "Many of the tensions of universities come from the lack of clarity in the allocation of authority."³ From such a statement a principle can be derived (i.e., "authority should be clearly allocated, otherwise tensions will result from ill-defined lines of authority").

In another chapter of his book, Stoke relates educational philosophy to the administration of higher education and derives some clear-cut principles of effective administration.⁴

¹Stoke, Viewpoints for the Study of the Administration of Higher Education.
²Ibid., p. 17. ³Ibid., p. 18. ⁴Ibid., pp. 21-28.
In keeping with his basic approach, these principles center upon the individual and human relations aspects of administration, rather than upon the organizational aspects. Stoke, therefore, represents one segment of a continuum of types of principles, ranging from those dealing exclusively with organizations and administrations as entities unto themselves to those dealing exclusively with the participant (in the organization) as an individual. This continuum may be drawn parallel to a second continuum representing how one can view administration and organization, with one end being titled "science" and the other end being titled "art." One possible conclusion based upon examination of these continua and their relationship to each other is that those seeing organization and administration as a science will place more emphasis upon the examination of organizational structure, process, line and staff relations, etc., and their principles will reflect this emphasis. Those seeing organization and administration as an art (Stoke included) will place more emphasis upon the individual and interpersonal relationships aspects rather than formal structures.

Returning to Stoke's specific formulations, we can see the above conceptualization reflected in his stress upon the principle that the primary determiner of the effectiveness of administration is the manner in which it is executed. He sees a key function of administration as explanation and persuasion.

\textsuperscript{1}Ibid., pp. 26-28.
rather than utilization of power. Thus, "manner" comes to be interpreted in terms of communication of information and a corollary principle is that effective communication is a requisite of effective administration. Stoke concludes by saying that "Administrative effectiveness grows not through knowledge of organizations and bylaws so much as through experience and skill in the intangible factors of human relations."  

In contrast to Stoke, Talcott Parsons takes a much more scientific and systematic view of organizational principles and components. Parsons' principles are derived from his basic organizational model which he holds is applicable to any social system. In his model there are four basic levels of organization ranging from most highly unified (the highest level) to most highly differentiated (the lowest level). Parsons represents the organization of all systems in terms of four functional problems defined by two major dichotomized axes. The first of these is the "External-Internal" axis which represents the organization's relationships with its external environment. The second axis is "Means-Ends" and accounts for the concept of the division of labor with differentiation of parts followed by integration. Therefore, the Instrumental (Means)-External quadrant delineates the "Problem of Adaptation," the Instrumental-Internal quadrant delineates the

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1Ibid., p. 23.  
2Ibid., pp. 27-28.  
"Problem of Adaptation," the Instrumental-Internal quadrant delineates the "Problem of Tension-Management," the Consummatory (Ends)-External quadrant delineates the "Problem of Goal Attainment," and the Consummatory-Internal quadrant delineates the "Problem of Integration." For Parsons, then, "principles" refers to principles of organization rather than to the role of the individual in the organization.

Lane, Corwin, and Monahan take a more integrated approach by examining both organizational and individual aspects of administrations. Their book is a comprehensive presentation of the historical, social, organizational, and individual elements of educational administration and presents a considerable amount of information useful to anyone involved in such an enterprise. The quantity and latitude of information presented by the authors is consistent with one of their primary principles or assumptions, which is that the successful administrator is one who is able to understand and predict human behavior in many situations, but also is able to analyze both organizational structure and group processes in the organization.

A second principle espoused by the authors is that method and theory are not separate but only different aspects of the same entity. Method is a part of theory and does not necessitate prior statements of hypotheses, for such prior

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1Lane, Corwin, and Monahan, Foundations of Educational Administration: A Behavioral Analysis.

2Ibid., pp. 24-25.

3Ibid., pp. 31-32.
statements can blind us to events which are relevant to the theory yet are unrelated to a given hypothesis. This principle is further developed through the authors' examination of two basic models of organization, the rational model, and the conflict model. These models will be discussed more extensively in later chapters of this paper and the conflict model will be used as a basis for the development of the simulation (see Chapter IV).

A series of principles is then developed as concepts or assumptions underlying the models presented. The first of these is that any organization "is primarily supported by two types of force, power and authority."¹ Power is interpreted as the threat of force while authority represents the right to use force, this right being granted either by delegation of authority or consensus. A second principle or concept is concerned with the concept of "offices" or officially-designated positions in organizations, and the recognition of both informal and formal power structures.² These offices "... prescribe broad functions and specific duties to incumbents, and a system of norms that regulate the relationship between incumbents of different positions."³ "Offices" become the integrative concept in the authors' analysis, in that offices establish expectancies for individuals' behavior and connect the individual personality with the organizational structure. This official system is

¹Ibid., p. 49. ²Ibid., pp. 51-53. ³Ibid., p. 51.
strongly affected by underlying "institutions," which "are rules that link cultural values to specific situations." Thus the existence of institutions demands that the values of the organization be compromised with the values of its external environment. This compromising process also reflects the oft-occurring conflict between these two sets of values.

More principles of organization and administration are derived from the authors' extensive discussion of bureaucracy and their related analysis of power concepts in a bureaucracy. In that bureaucracy represents a method for the organization of administrative functions, two primary principles for such organization are coordination and specialization. Power is seen as money in that it can be exchanged for other benefits within the organization. But organizations only have some (not total) control over power assignment and misuse of power can cause wide-ranging organizational crisis.

Finally the authors examine the concept of organizational leadership. Leadership is seen as inseparable from the organization itself and leaders need to be able to realistically perceive conflicts and clarify the issues at hand. The bases for the authority of the leader are his popularity and respect with those in the organization. Leadership is seen as a social process, rather than a set of functions, what the

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1Ibid., p. 54.  
2Ibid., pp. 183-207.  
3Ibid., p. 183.  
5Ibid., pp. 205-206.  
6Ibid., pp. 205-206.
leader does, or social relations. The leader, to be effective, must clearly understand principles of human interaction in organizations and must use these principles to understand a variety of situations where particular goals must be attained.²

J. Douglas Brown emphasizes communication factors in stating his principles of organizations and administrations in higher education.³ He differentiates leadership in higher education from leadership in other organizations by stating that the former type of leadership operates primarily through response while other types tend to operate through command.⁴ The primary function of such leadership thus becomes, according to Brown, the stating and communicating of ideas and the underlying reasons for actions. Because communication is concerned with interpersonal dynamics rather than organizational dynamics, Brown centers upon the individual as the key element in any organization. Often, in universities "... one finds that individuals, and not written job descriptions, determine influence."⁵ In speaking of communication between the administration and students, Brown makes a final point by stressing the importance of upward communication in aiding the development of policy.⁶

¹Ibid., pp. 305-313. ²Ibid., p. 313
⁴Ibid., pp. 42-71. ⁵Ibid., p. 46.
⁶Ibid., p. 86.
Demerath, Stephens, and Taylor, in an extensive study of administrative relationships at the University of North Carolina, conclude that it is the individual administrator's "administrative style" which makes the difference in how the institution is run.\(^1\) In summing up their findings and recommendations, they state that the main implications are "... that universities, adapting to societal needs, cannot rely upon bureaucratization of structures; upon more formal organization or upon more line administrators with greater official authority."\(^2\)

Behavioral Elements of Organization and Administration

When one speaks of behavioral elements of organization and administration, one is primarily concerned with leadership, group dynamics, and interpersonal factors applicable to most or all organizations rather than theoretical principles of how such organizations function, as discussed above.

An example of the behavioral approach to organization and administration is William Savage's position in his excellent book, *Interpersonal and Group Relations in Educational Administration*.\(^3\) Savage's first premise and probably a key


\(^{2}\text{Ibid., p. 216.}\)

\(^{3}\text{William W. Savage, "Interpersonal and Group Relations in Educational Administration" (Glenview, Illinois: Scott, Foresman and Company, 1968).}\)
reason for the depth of the book is that the "very nature of the administrator's tasks demands knowledge and skills in interpersonal and group relations." Further developing this point, Savage goes on to state several more points which he believes emphasize the importance of human relationships to the administrator's tasks.

2) The administrator's effectiveness and success are related closely to his knowledge and skills in interpersonal and group relations.

3) The administrator who has knowledge and skills in interpersonal and group relations behaves or acts in a manner that distinguishes him from persons who lack such knowledge and skills.

4) The study of interpersonal and group relations results in changes in the behavior of many administrators and persons preparing for administrative positions.

5) The acquisition of an understanding of interpersonal and group relations and the development and actual use of skills in this field demand ability, personality characteristics that all people do not possess, and an environment in which effective relationships are possible.

Throughout his work Savage backs up his points with references to empirical studies of interpersonal, group, and inter-group relations and factors. He continually stresses the importance of having administrators not only understanding these studies and the generalizations derived from them, but also incorporating this knowledge into their belief system and behavior. Lest this point be lost to the reader, Savage devotes several chapters of his book to a discussion of human relationships.

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1Ibid., p. 7.  
2Ibid., pp. 11-14.  
3Ibid., p. 15, p. 20.
needs, human culture and classes, and the implications of these areas for the administrator.

Savage next examines the behavioral aspect of organizations and administrations from the standpoint of roles, role expectations, and role conflict. "Each administrator needs an understanding not only of the role expectations held for his position but also of the ways that others perceive his behavior."1 He sees role expectations as being defined by his position and not applicable to him individually.2 A major problem that administrators must deal with is role conflict; often he must spend much of his time in reducing or resolving such conflicts in his organization and for himself.3

The next behavioral area dealt with by Savage is the impact of formal and informal groups upon the administrative process. Savage points out that informal organizations, both within and external to the formal organization of the administration, have considerable impact upon the administrative process.4 Such groups can be neutral, constructive, or conflict with the administration and must be recognized and dealt with by the administration.5 The mere fact that they exist forces the administrator to assume a political role in order to deal with them.6 Thus he must be a person who

... must understand power structures and political maneuvers, and as a leader who has the knowledge and skills

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1 Ibid., p. 129  
2 Ibid., p. 121.  
3 Ibid., pp. 132-147.  
4 Ibid., pp. 154-296.  
5 Ibid., pp. 163-166.  
6 Ibid., p. 203.
necessary to influence decisions, legislation, and attitudes that are favorable to the educational program for which he is responsible.\footnote{Ibid.}

The latter part of the book presents a rationale and intensive analysis of group processes and techniques which the administrator needs to utilize in dealing with the variety of groups on his campus.\footnote{Ibid., pp. 222-296.} These processes are applied both to formal groups such as faculty meetings, committees, etc., and to informal groups. Techniques covered include speakers, consultants, panel discussions, and group interviews. Small group techniques presented include the "Phillips 66" plan (in which a large group is subdivided into groups of 6 to discuss the topic for 6 minutes and then members of each group report to the total group), and "Incident Process" (in which an incident is described, each person is assigned a role and discusses in the small group the decisions he would make and why, after which spokesmen discuss the good points of the various decisions in the total group), and role playing (to be discussed later in Chapter III). Savage finishes up his book with an analysis of communication processes and problems arising from poor communication.\footnote{Ibid., pp. 298 to end.} All aspects of administrative communication are covered, including mass communication, letters, speeches, discussions, and interviews. Savage sees the crux of administration as being communication and considers both theoretical and practical points of view.
Savage typifies a current interest of those studying organizations and administrations, this interest being in the area of group behavior and roles. For example, Earl McGrath has published a brief work dealing with the variety of the roles and functions of the college president.\(^1\) William J. L. Wallace, in commenting on the preparation of college and university administrators, states that "To be successful, every member of this administrative team . . . must have some idea as to the role of that team in the success of the institution."\(^2\) This "role" approach is also taken by Demerath, Stephens, and Taylor (see above). Cartwright and Lippit outline five propositions about groups and group behavior that they feel must be understood by any administrator seeking to bring about change in his organization or institution.\(^3\) And Herbert Thelen defines nine characteristics or properties of groups in his *Dynamics of Groups at Work*.\(^4\) David D. Henry, in commenting on statements made by Frederick de W. Bolman, Jr. (see above) points out that "It is important for the administrator to have


some intuitive or articulated appreciation of the dynamics of group activity."^1

A book which is not specifically aimed at the administrator, yet which presents a comprehensive review and synthesis of the experimental literature on group behavior is Sidney Verba's Small Groups and Political Behavior: A Study of Leadership. Verba applies the theory of small-group behavior (small here meaning face-to-face) to political science because such groups are seen as the key to political relationships in that they are where decision-making takes place. Also, such groups to a large extent determine the beliefs and attitudes of their members. Verba interprets the term "political" in a much broader sense than we might suppose. In fact, he sees all leader-follower relationships as political relationships because the primary element in them is power or influence. 4

Verba's book also represents a valuable resource because it undertakes an intensive review of small-group literature and synthesizes the findings of such material. Included in this synthesis are common elements Verba found in definitions of small groups, including: 1) face-to-face contact, 2) small size (no more than 20), 3) common goals or purpose, 4) variety of types of groups but certain common behavioral character-

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^3Ibid., pp. 3-10.  

^4Ibid., p. 10.
istics, and 5) formal and informal groups as two general classifications of all groups. Verba also sees the face-to-face or "primary" group as being the variable lying between the organization and the individual. Because of this, analysis of the primary group enables one to understand both the individual's political behavior and the behavior of the political system as a whole.

The small group decision-making process is characterized by consensus so that open conflict is prevented. As was previously pointed out, the group also plays a major role in the beliefs and behavior of group members. To a considerable extent it can and does provide training for the individual for roles that he will later play within society. This training consists in both the teaching of certain standards of behavior that can be applied to later situations and, perhaps more significantly, the playing of roles in the family and in other primary groups that are similar to roles later to be played in the political or economic system.

The primary group, then, exerts a powerful influence upon the individual's attitudes and thinking, and later behavior. Utilization of such groups for training purposes would appear to be one facet of organizations that should not be overlooked by the administrator. As Verba also explains, such primary groups can be established under controlled (laboratory) conditions in order to observe and measure the interpersonal processes occurring. Under such controlled conditions certain aspects of the

1 Ibid., pp. 11-13.  
2 Ibid., pp. 27-30.  
3 Ibid., pp. 61-131.  
5 Ibid., p. 31.
processes are, of necessity, simplified by the experimenter so that he can better examine relationships between specific variables. Important elements of such laboratory studies include the formation of interpersonal relationships during the process of problem-solving, the degree of involvement of the subjects, and the need for the group to create a structure while attempting to solve problems. One major area of concern in such studies is the relationship between the laboratory situation and reality--this problem will be discussed thoroughly in Chapter III. Verba proceeds to list and discuss several methods useful for studying interpersonal and organizational processes in the laboratory. These include simulations, and LGD (leaderless group discussion) techniques.

Verba's final chapters are extensive discussions of leadership concepts, with particular emphasis upon small group leadership, leadership measurement, and identification of leaders; affective and emotional aspects of leadership; leadership roles, especially the leader's role of balancing affective satisfactions of the group membership with performance needed to achieve the group's goals; leadership, group norms, and group pressures on the leader to conform to its norms; and the usefulness of changing leaders to change group norms.¹

In reviewing his work and conclusions, Verba develops the concept of "The Participation Hypothesis," which is based on Herbert Simon's work and basically states that "... signif-

¹Ibid., pp. 110-204.
significant changes in human behavior can be brought about rapidly only if the persons who are expected to change participate in deciding what the change shall be and how it shall be made."¹

Crisis Situations and Organizational Response

Increasingly, the literature of organizations and administrations, especially that related to higher education, is becoming concerned with crisis situations and conflict. Evidence of this concern is given by Robert M. Crane writing in his "Bookshelf" column in the October, 1970 issue of the NASPA Journal. Crane commissioned Robert J. Silverman of Ohio State University to develop and present a brief annotated bibliography on this topic and introduced Silverman's results by stating:

Lacking a clearly defined theory of conflict, change, controversy, and resolution processes, higher education—indeed education at all levels—is now witnessing inadequacy in the daily lives of persons in society. . . . [We need] to look at these processes continually and critically to understand its role in campus life, and then to apply experimentally some of the concepts in day to day, problem-solving situations.²

Silverman introduces his annotated bibliography (some resources from this bibliography are presented below) by citing a keynote statement from the 1970 NASPA Conference, "Conflict and Change in the Academic Community." This statement, as reported by Silverman, is: "A prominent characteristic of the

¹Ibid., p. 206

academic community is conflict—conflict among sub-populations within the institution and between the institution and the larger society.  

Thomas C. Schelling provides extensive theoretical information on crises and conflict in his book, The Strategy of Conflict. Schelling basically sees most conflict situations as bargaining situations because how well one side obtains its goals partially depends upon what the other side does. Thus a key element of such situations becomes the strategy developed by each side, strategy being based upon the interdependence of decisions made by opposing sides.

Schelling's concern next shifts to bargaining between opposing sides. He believes that the essence of bargaining is self-commitment and the communication of this commitment to the opposing side. One aspect of this commitment is the communication of threat to the other side, such threats representing one's own incentives but also changing the other side's perceptions of the side communicating the threat. Bargaining thus represents a process of mutual accommodation, rather than pure agreement. Schelling then relates much of the above information to game theory (see Chapter III), and analyzes weaknesses in formulations of strategy employed in such theory.

1 Ibid.
3 Ibid., p. 5.
4 Ibid., pp. 3-16.
5 Ibid., pp. 21-43.
6 Ibid., p. 102.
Kenneth Boulding also takes a theoretical approach to conflict in his book, *Conflict and Defense: A General Theory*. This technical, mathematically-oriented work deals extensively with conflict models, including static and dynamic types. Like Schelling, he applies his theoretical notions to game theory (see Chapter III). Of particular interest for this section of the paper is Boulding's discussion of the group and its relationship to conflict. Boulding deals with groups because he believes that inter-organizational conflicts express and develop from inter-group conflicts. Each person belongs to many different groups and group conflict therefore becomes a struggle for roles, "... for human time, energy, and attention. ...".

Organizations tend to develop out of groups that are unorganized, and, conversely, organizations tend to create groups which express the purposes and nature of the organization. Conflict often plays a key role in these processes because an organization's behavior can often be determined by the fact that it perceives itself as being in conflict with other organizations. "Organizations frequently organize themselves against something. ...". Conflicts that start at the group level can easily develop into organizational conflicts.

Important to an understanding of Boulding's ideas is

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2Ibid., p. 106.  
3Ibid., p. 145.  
4Ibid., p. 110.  
5Ibid.  
6Ibid.
being familiar with his conceptualization of organizations.

An organization is a structure of units that are called **roles**, a role being that part of a person's behavior that is relevant to the organization. These roles . . . are connected by lines of communication and by mutual compatibility of expectations.

The nature of the role itself exerts a predominant influence on the behavior of the occupant in the role . . . A decision in any role is made as a result of information received as well as instructions.1

For conflict to exist between organizations, organizations must be aware of the existence of each other, decisions made by one must affect both, and the effect of one organization's decision must be perceived by the other as unfavorable.2 Crisis and conflict (internal) can only be avoided by organizations if organizations succeed in maintaining internal cohesion through consistency of role structures.3 This consistency can be maintained if the organization puts itself into a conflict situation with another organization and all such conflicts have ideological elements inherent in them.4

For Boulding "the essence of the drama of conflict is its resolution."5 Resolution of conflicts can be accomplished by several methods, including: 1) avoidance (groups involved in the conflict are removed from one another), 2) conquest (one group is removed from the scene of the conflict), 3) procedural (because the two groups must live together, conflicts are allowed to end). Types of procedural resolution include reconcil-

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1Ibid., pp. 146-147.  
2Ibid., p. 152.  
3Ibid., p. 160.  
5Ibid., p. 307.
iation, compromise, and reward from an outside group.¹

Boulding next deals with the theoretical aspects of bargaining. Because he believes that bargaining is the essential method for dealing with crises and conflicts, he firmly states that "all political organizations have to develop a ritual of settlement or decision."² Without such a ritual or system, or with a poorly-developed system, the end result of conflict will be violence (caused by the attempt to use conquest to resolve the situation).³

In summing up his work, Boulding says

The biggest problem in developing the institutions of conflict control is that of catching the conflicts young. . . . To catch conflicts young, however, means that these dynamic social processes which lead to ultimate breakdown have to be publicly identifiable.⁴

In order to control conflicts, control systems must deal with two problems, termed by Boulding as being 1) "signal detection"—how we know something needs to be done—and 2) "implementation"—how we know what to do.⁵

Lane, Corwin, and Monahan also deal with crisis aspects of organizations and administrations.⁶ They develop their approach through examination of the conflict model of organization, this model being based upon an analysis of power and

³Ibid., pp. 322-323. ⁴Ibid., p. 325.
⁵Ibid., p. 326.
⁶Lane, Corwin, and Monahan, Foundations of Educational Administration: A Behavioral Analysis.
power-conflicts.\textsuperscript{1} Conflict is basically perceived as being group-rather than individual-centered. The authors support Boulding's point that inter-group conflict has, as one result, increased intra-group cooperation.\textsuperscript{2} Each participant in a conflict develops a system of beliefs or a justification that enables it to continue the conflict.

Underlying this conflict model of organization are several essential concepts, the primary one being that organizations are mainly supported by force of two kinds—power and authority.\textsuperscript{3} In response to this perception, internal conflicts can occur within an organization. Such conflicts are often avoided by administrators because these conflicts threaten to dissolve the organization itself.\textsuperscript{4}

The administration of schools may be conceptualized as a matter of coping with organized groups in various states of tension. . . . \textquoteright (C)onflict\textquoteright also implies groups in conflict. Group conflict may overshadow the relationship between even potentially compatible persons if they represent opposing groups.\textsuperscript{5}

Conflicts and groups also play a key role in Savage's perceptions of organizations and administrations, as was pointed out earlier.\textsuperscript{6} Conflict resolution can only come about if effective exchange of views can occur between conflicting parties.\textsuperscript{7} Conflict itself and how it develops are affected by

\begin{itemize}
\item \textsuperscript{1} Ibid., pp. 42-55.
\item \textsuperscript{2} Ibid., p. 43.
\item \textsuperscript{3} Ibid., pp. 49-55.
\item \textsuperscript{4} Ibid., pp. 229-240.
\item \textsuperscript{5} Ibid., p. 232.
\item \textsuperscript{6} William W. Savage, \textit{Interpersonal and Group Relations in Educational Administration}, pp. 132-147.
\item \textsuperscript{7} Ibid., p. 195.
\end{itemize}
the characteristics of the community, the community power structure, the issues, social class(es) of participants, and attitudes of community members towards the community.¹ Because of these factors, Savage points out that administrators must be able to develop the necessary skills to objectively examine both sides of an issue and then communicate this analysis to opposing sides.² Savage develops the thesis that one way to bring about effective resolution of a conflict is through the use of "bridging groups" to increase inter-group communication. A "bridging group" is a group made up of members of both factions and oriented not to solving the problem itself, but rather to increasing communication between factions and changing attitudes.³

Norman Matlin takes the interdisciplinary approach cited earlier by applying economic theory to the field of education in his book The Educational Enclave: Coercive Bargaining in Colleges and Universities.⁴ In his book he presents his theory of coercive (power) bargaining and its applications to the "educational enclave," enclave being defined as a "semi-autonomous quasi-society."⁵ The theory basically deals with power relationships and assumes that potential bargain partners have

³Ibid., pp. 220-221.
⁵Ibid., p. 31.
unequal quantities of power. The partner (a group or a person) with the greater power will use it as little as possible to attain his goals, and the weaker partner is even less likely to use his power because he is aware that he will lose a power struggle. Because of these conditions the assumption is made that both sides wish to at least partially end the conflict and both sides are rational. What a "reasonable" bargain consists of will be affected by how aware the sides are of each other's and their own power positions.¹

In the bargaining itself, the first offers made by both sides are based on self-interest, and further offers will more and more resort to the use of power if the parties' ranges of what is an acceptable bargain do not overlap. Such negotiations help to end uncertainty existing between opposing groups, and the success of negotiations depends upon the negotiators' skill, the interest of the parties in obtaining a bargain, and the initial uncertainty when bargaining begins.²

In a practical example of the application of such techniques, Business Week magazine discusses the results of applying mediation techniques developed in labor-relations to the resolution of student disputes in universities and colleges.³ According to the magazine's survey, the results have generally been mixed but may prove most useful as a "trouble-shooting"

device when things have calmed down somewhat. Problems include whether or not the group being dealt with actually speaks for the students, agreements made not necessarily being binding on the students, and deciding who should be a mediator.

Josiah S. Dilley takes a somewhat different and more practical approach in his book *Higher Education: Participants Confronted*. Dilley's basic assumption is that "... when people see positions and problems from the other's point of view, they are more likely to work harmoniously together toward making constructive changes." Much of the book consists of presenting actual problem cases (derived from real situations which took place at institutions of higher education) to the reader, letting him make a decision about what to do, and then giving the actual solution. The latter part of the book discusses making "good" decisions, with the recognition that "good" is a term relative to how those affected by a decision evaluate it.

Dilley then proceeds to differentiate between the decision process itself and the product of that process—the actual decision. He lists seven simple types of decision processes, including:

1) follow an accepted rule,
2) utilize a rational process,
3) act to gain social approval,

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2 Ibid., p. 1.
3 Ibid., pp. 109-114.
4) follow your intuition,
5) leave it to fate,
6) arrange a compromise,
7) consult an expert.\(^1\)

From these seven basic types, various combinations can be utilized, such combinations being called "complex decision processes."\(^2\)

Sidney Verba, in developing his concept of the primary group (see earlier section of this chapter), points out that such groups can often conflict with the political system if their group standards or norms are different from those of the larger system. This conflict tends to lessen the impact of the larger system upon the primary group.\(^3\)

In concluding this chapter, it is important to point out that the material presented here is intended to give the reader a firm conceptual basis for understanding relevant aspects of organizations and administrations. The next chapter consists of an extensive discussion of aspects of simulation techniques; and Chapter IV will develop the integration of the materials on organizations and administrations presented above with the techniques of simulation discussed in the following chapter.

\(^1\)Ibid., p. 111. \(^2\)Ibid. \(^3\)Verba, Small Groups and Political Behavior: A Study of Leadership, pp. 49-53.
CHAPTER III

SIMULATIONS

Introduction to the Chapter

Several social sciences have recently incorporated into their methodology a technique variously called "simulation," "gaming," or even "simulated gaming." A great variety of definitions has been given by many authors, some of whom even apply the terms "simulation" and "games" to different entities. Since there is no single widely-accepted definition of these terms, it would be well to review a few of the definitions used.

John Raser, for example, differentiates between "simulations" and "games." He sees simulations as being explicit operating models of complex social and physical systems (see the fourth section of this chapter for a more extensive discussion of the relationship between models and simulations). A game, however, is a more "informal and tentative" model and can actually be played by humans. Meier, Newell, and Pazer support the distinction made by Raser, but see simulations as "... primarily tools for research into dynamic behavior of systems" whereas games involve humans making decisions and

are distinguished by the idea of play."¹ Reflecting this definition, Mize and Cox define "simulation" as "... the process of conducting experiments on a model of a system in lieu of either (1) direct experimentation with the system itself, or (2) direct analytical solution of some problem associated with the system."²

June R. Chapin maintains the distinction and adds a third element. For her a simulation is "... a model of a situation ... with reality simplified."³ A game is "... a contest or play activity among opposing players; there is usually the objective of winning and the element of competition."⁴ The third element is role-playing (also discussed later) which she sees as involving "... many of the elements of simulation but usually is more structured and does not involve ... special equipment."⁵ Bernard C. Cohen places emphasis upon what he calls "reality games," or games where players act as real-life decision makers and must solve "realistic" problems introduced into the games.⁶


⁴Ibid.

⁵Ibid.

The second group of definitions presented here do not differentiate between "simulations" and "games." Typical of this approach is Richard E. Dawson writing in Harold Guetzkow's *Simulation in Social Science: Readings*.

Simulation, as a social science research technique, refers to the construction and manipulation of an operating model, that model being a physical or symbolic representation of all or some aspects of a social or psychological process.¹ Dawson then goes on to state that he sees no essential difference between "simulations" and "games" and continues to use the terms interchangeably. Martin Sleeper goes one step further and runs the two terms together, coming up with the single term "simulation game." His definition of this single term is as follows: "The simulation game is basically a learning device which, by creating a situation directly analogous to some phase of the real world, attempts to make the student a participant rather than an observer in the decision-making process."²

Nesbitt also uses the terms interchangeably after reviewing several others' definitions and their attempts to distinguish between the two terms. After his review, he concludes that the determining factor of how the authors use the terms is the "image" they wish to project. Those using the term "simulations" generally want to project a more scientific image and tend to use fairly complex and sophisticated models, computers,


and mathematically-oriented processes. Those using the term "games" generally use simpler models and rely more on human players.¹

James S. Coleman, a leading educator and strong exponent of simulation techniques for didactic purposes, also uses the terms "games," "simulations," and "simulation games" interchangeably and adds a fourth term, "social simulation games." Coleman's approach, and the approach of this study, is to present a unified general definition applicable to all of the terms, and to back up this definition with a second, operational statement. His basic emphasis, unlike many of the authors cited above, is to highlight the social aspects of games rather than the types of models used. For him, a "social simulation game" is a game "in which certain social processes are explicitly mirrored in the structure and functioning of the game."² The games abstract these social processes; in Coleman's operational statement they ". . . pluck out of social life generally a circumscribed arena and attempt to reconstruct the principal rules by which behavior in this arena is governed and the principal rewards that it holds for participants."³


Under his general definition Coleman includes games which abstract life activities as well as games which abstract social relations, thereby including what others refer to as "simulations" (as opposed to "games"). Key elements in any social simulation game include a social environment based on social processes existing in the real environment, a system of rules and rewards based on or governing these processes, and the players or those who function in the simulated social environment. Because these key elements are relevant to the simulation developed for this paper, particularly because of the emphasis upon the social environment, the author will follow Coleman's practice of using the terms "simulation," "game," "social simulation," and "social simulation game" interchangeably. Also, these terms, when used, will refer to Coleman's general definition and operating statement.

Historical Development

"Games," at least what most people think of when the term "games" is used, have probably been around as long as mankind. Evidence of children's games and "adult" games can be found throughout history, and even primitive rituals would appear to fit Coleman's general definition of games. Clark Abt

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1 James S. Coleman (Preface), Simulation Games in Learning, ed. by Boocock and Schild (Beverly Hills, Calif.: Sage Publications, Inc., 1968), pp. 7-10.


3 For an excellent discussion of play and games, see Johan Huizinga's Homo Ludens: A Study of the Play Element in Culture (Boston: Beacon Press, 1950).
sees games as probably originating when man desired to obtain experience above and beyond that which he already had. Important elements of reality were selected and developed into a small, simplified model which could be more easily understood. Abt feels that the next step was the development of role-playing, the roles thus making the model a working one and leading to many of our present-day games.¹

Present-day games, game-theory, and simulation techniques, while based upon more informal and elementary games mentioned above, probably can be traced back directly to the development of modern war games. The Kriegspiel or war game developed by von Reisswitz for the Prussian army during the 1800's used actual maps and battlefield situations to which army officers had to respond by issuing orders. An umpire or team of umpires then evaluated these orders. Later versions of Kriegspiel used two opposing teams of officers, maps, pieces representing troops, artillery and supplies, and had a "control" team which added realism and chance factors by representing "outside events" (nature, other factors) and introjecting these events into the game. Thus the games were recognized as a major method of training officers in combat techniques and problems. Such games have since been adopted by most of the world's armed forces and have also been set up on computers.²


Meanwhile, the direct use of games in education was being undertaken by Montessori and Pestalozzi, who both recognized that games were a part of the educational process, rather than peripheral to it.\(^1\) John Dewey was chiefly responsible for the development of this idea in the United States, strongly believing that, because games were a powerful learning device, they should be utilized in the schools.\(^2\)

During the period between World War I and World War II many developments in statistical techniques, including the development of "Monte Carlo" methods, led to investigation of the theoretical aspects of games.\(^3\) This theoretical, mathematically-oriented approach was first taken by von Neumann in his early papers (1928 and 1937) and later in his book with Morganstern (Theory of Games and Economic Behavior, 1944), and was accelerated by WW-II and the resulting heightened interest in the nature of the conflict.\(^4\) Meanwhile, in this same pre-World-War II period, developments were taking place in other areas which would greatly influence later approaches to simulations. Germany and Japan applied the concept of war games to the political arena. The resulting games were used to develop detailed

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\(^2\) Sarane S. Boocock, "From Luxury Item to Learning Tool: An Overview of the Theoretical Literature on Games," *Simulation Games in Learning*, ed. by Boocock and Schild, pp. 53-64.


information on foreign policy and to give political and military leaders more understanding and insight into how events developed and led to military conflict. At this time Moreno was developing role-playing into the technique of psychodrama. Role-playing, later to be used extensively in simulations, was seen by Moreno as having major value because decisions could be made and alternative decisions tested out by role players without having them pay "real-life" consequences.

The post-World-War II period saw interest in simulation games maintained in two areas: business, and world affairs. The RAND Corporation began work in 1954 on a complex political game which simulated the international situation. Players in teams represented the governments of different countries and another team represented "nature" with a group of referees also being set up to rule on how "feasible" each move was. The teams were to function as they felt the governments of their real-life counterparts would operate and were given a "historical backdrop" leading up to the present (simulated) situation. During the game players could select and follow through with any strategies they chose--alliances, war, economic pressure, etc.--as long as it met the criterion of feasibility. By playing the game it was found that players learned: 1) what types of problems were associated with particular strategies; 2) much


about the structure and decision-making involved in world politics; 3) to acquire an overview of the situation; 4) to gain insights into "the pressure, uncertainties, and difficulties" of international decision-making.\(^1\)

In 1956 the American Management Association developed its Top Management Decision Game (1957) for use on college and university campuses. This game was utilized to train students in management decision-making. From this basic game many types of management, business, and economic games were developed and used for such training purposes, until in 1962 a study revealed that approximately two-thirds of the major collegiate schools of business were using such games to train students.\(^2\)

Since these games cited above, there has been and continues to be increasing applications of game techniques to diverse fields. Raser concludes that games are presently being used in the areas of management and business, economics, political science and international relations, sociology, and education.\(^3\) More and more often the literature reveals that simulation games have a wide variety of uses when applied to both theoretical and practical problems in these and other fields. The continued expansion of all fields, particularly


\(^3\)Raser, Simulation and Society: An Exploration of Scientific Gaming, pp. 54-62.
education and science, necessitates continued efforts to develop technological approaches which can be utilized in many areas and simulation games would seem to represent one such approach.

Theoretical Aspects

At the philosophical-theoretical level, there are two opposing viewpoints of the relationship of games (in the general sense) to life. Herbert Spencer represents one of these viewpoints in that he holds games are separate from real life and serve to enable higher animals to use up surplus energy. The other viewpoint, and one of the basic philosophical-theoretical assumptions of this paper, is held by James S. Coleman. Coleman sees games and life intimately related and intertwined. Life itself, he believes, can and should be seen as a game rather than trying to see the relationship of games to life. In both life and in games the participants have goals that they act towards, rules exist which delineate what actions are allowed and not allowed, and other rules (sometimes stated before the experience and sometimes "discovered" by participants during the course of the experience) tell participants how each action is going to aid or prevent their reaching their individual goals.

Game theory itself falls under the more general province

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1 Boocock, "From Luxury Item to Learning Tool: An Overview of the Theoretical Literature on Games," pp. 53-54.

of conflict theory, which will be explored briefly here. Most social sciences deal with conflict theory and conflict models. Kenneth Boulding presents an extensive examination of these areas in his work, Conflict and Defense: A General Theory.¹ Boulding studies the two basic models of conflict—static and dynamic. Both models involve identical basic concepts, including: 1) the necessity of having two or more parties in any conflict situation, each party representing a "behavior unit"; 2) each behavior unit has its individual "behavior space," which represents a combination of its past history, present position, and possible future positions; 3) competition between behavior units exists when "any potential positions of two behavior units are mutually incompatible," but not all competition is conflict; 4) conflict is a competition situation where the conflicting parties "are aware of the incompatibility of potential future positions and in which each party wishes to occupy a position that is incompatible with the wishes of the other."²

In the static model of conflict each of the behavior units values its possible positions in a particular order and defines the limits of its possible positions. The "best" position for a behavior unit is that position it values most, and the behavior of such a unit consists of its moving to the "best" position possible. Behavior is classified as irrational if the behavior unit has ordered and valued its positions upon the

²Ibid., pp. 1-6.
basis of a faulty perception of reality. When a field contains two behavior units, it may be divided into two areas—the "conflict" area and the "trading" area. If two behavior units can both move and feel they each have gained, then a trading point exists. However, if any move makes one behavior unit worse off, then this represents a conflict point. Bargains can only result if trading or acceptable areas overlap.  

Boulding next deals with dynamic models of conflict and enables them to be differentiated from the static conflict models discussed above. These dynamic processes describe the constantly changing nature of the fields of two or more behavioral units, such changes caused by the movement of one unit changing the field of a second unit which forces this second unit to move in turn, changing the field of the first unit, etc. These processes are called "Richardson processes" and encompass three basic concepts: the objective situation, the first unit's situation as perceived by the second unit, and the second unit's situation as perceived by the first unit. The discrepancy between the latter two leads to "misunderstanding processes."  

After briefly covering how game theory has contributed to conflict theory, Boulding turns to "the theory of viability," "viability" referring to how capable and willing one unit is of destroying or eliminating the other unit. A unit is "unconditionally viable" if it cannot be destroyed by the other, but it is "conditionally viable" if the other unit can destroy it but

1Ibid., pp. 6-17.  
2Ibid., pp. 20-41.
doesn't. If both units are in the former state or are relatively secure in the latter state, then "protracted conflict" is the result and the key issue becomes control of conflict rather than its resolution.¹

Behavior units can be either individual persons or groups, but in all cases each behavior unit attempts to attain the position (in his field of choice) which he prefers most. Important elements in conflicts are the symbols involved and the images resulting from the interaction of these symbols with the past experiences of each unit. Conflicts often result in changes of symbolic systems involved, such changes taking the form of: 1) "conversions or resolutions," which are adoptions of new symbolic systems over rejected previously-existing systems, 2) "reformations," which are purifications of old systems, and 3) "accretion of new elements," these elements being integrated into the original system and either being borrowed from other symbolic systems or developed within the original system.²

"Ecological models" of conflict refer to conflict models incorporating notions of intergroup conflict into them. Inter-organizational conflict results from inter-group conflict, but little or no organization needs to exist as a necessary prerequisite for inter-group conflict. Such conflicts are very complex because in actuality each person belongs to many different groups. Because of this, it is appropriate to view group conflicts in terms of "a struggle for roles" rather than in

¹Ibid., pp. 58-59. ²Ibid., pp. 80-103.
terms of the individuals involved.  

A second model for group conflict is what Boulding calls the "epidemiological model." This model is based upon models accounting for the spread of disease and centers emphasis on inter-individual conflict rather than roles and role-conflict. Another concept adopted from the disease model is that of "immunity"—if a person recovers from the disease, his chances of reinfection are lessened. "Immunity," as applied to inter-group conflict, refers to the effects of the transformation of one individual's image of another individual and the resulting cyclical movements. Mass media play an important role in image transformation and thus can greatly alter the rate and direction of attitude spread.

Thomas C. Schelling also deals extensively with theoretical aspects of conflict, particularly notions of strategy and bargaining, and begins to tie together game theory and conflict theory. "Strategy," for him refers to "... the interdependence of adversaries' decisions and their expectations about each other's behavior." This interpretation does not exclude the possibility that there are common as well as conflicting areas of interest between two groups. However, strategy is seen as

1Ibid., pp. 109-110.  
2Ibid., pp. 123-143.  
3For an extensive discussion of Boulding's view of inter-organizational conflict and conflict resolution, see pp. 25-27 of the previous chapter.  
5Ibid., p. 3.
exploitation of potential force, rather than the actual use of force.¹

Thus, two sides engaged in conflict are interdependent; how able one side is to gain its ends is considerably affected by the moves made by the opposing side. This interdependence means that most conflict situations are also bargaining situations and any theory of strategy is really a theory of interdependent decisions.² Bargaining tactics have at their heart the "... voluntary but irreversible sacrifice of freedom of choice."³ The commitment to do this, plus communication to the other side of the degree and strength of this commitment, represent the two major elements of bargaining. This communication can in itself play a major role in bargaining, for the other side can view the commitment (because of faulty communication) as a firm and/or final position, or as a threat. "Threat" represents communicating the individual's or group's incentives and serves to change the other's perceptions of one (whether group or individual).⁴

Conflict theory and game theory are specifically examined by Anatol Rapoport in his book, Fights, Games, and Debates.⁵ This book, along with Schelling's book, represent transitional works in that they relate conflict theory to the specifics of game theory. Rapoport first distinguishes among the three

¹Ibid., pp. 3-5. ²Ibid., p. 5, p. 16.
³Ibid., pp. 21-22. ⁴Ibid., pp. 22-38.
elements of his title, "fights," "games," and "debates." He sees "fights" as having the major goal of hurting or damaging the opponent. "Games" are more oriented towards outwitting the opponent, and taking into account all possible outcomes. In "debates" the major goal of one side is to convince the other side.\(^1\) Throughout his book Rapoport presents several complex mathematical models of hypothetical and real conflict situations, including an arms race, cooperation, and exploitation. These models, while useful, are valuable as examples of what can be done rather than specific approaches usable for this paper.

Like Schelling, Rapoport also extensively examines strategy as a concept used in game theory. A basic assumption of the concept of strategy—and of all game theory—is that the individual is rational. This assumption is based upon criteria which include the individual's examination of all possible consequences of selecting a course of action, the decision by the individual that some consequences are more preferable than others, and his selection of the course of action which will lead to the preferred consequences. The final outcome, of course, depends not only upon this individual and his selected actions, but also upon what actions the others select.\(^2\)

Game theory itself represents a mathematical approach to conflict theory. The word "game" in game theory represents a recognition that many common "parlor" games represent pure examples of concepts dealt with in game theory. Gambling theory,

\(^1\)Ibid., pp. 10-11.  \(^2\)Ibid., pp. 107-109.
and its concern with odds, is linked with the simplest type of game, the "one-person game" or "game against nature" (i.e., chance). Even at this level, certain basic elements of all games come into play. "Rules," for example, set the limits as to what can happen in a game. Games take place through "moves" made by players. In game theory the term "move" refers to the total range of possible choices open to each player whose turn it is.\(^1\) Game theory in general, then, is focused upon problems involving two rational and informed decision makers seeking to achieve particular outcomes, when they each prefer different outcomes. In a pure strategy game (from the standpoint of game theory) each player gives his sets of moves for each situation (that may occur during the game) before the game begins. In games where chance is a factor, the outcome of the game is not determined by "pure strategy," but rather by a combination of players' choices and chance factors.\(^2\)

Luce and Raiffa present an even more extensive examination of game theory, and their work will be used for continued exploration of the concepts presented initially above.\(^3\) Game theory and the mathematical approach to interest conflict grew out of extensive work by von Neumann during the period 1928-1944 (see previous section on the historical development of games). It is important to note that game theory is not empirically based but rather is derived from extensive theoretical work in

\(^1\) Ibid., pp. 109-121.  
\(^3\) R. Duncan Luce and Howard Raiffa, Games and Decisions (New York: John Wiley and Sons, Inc., 1957).
mathematics. Therefore all conflict-of-interest situations and problems are not covered; only certain areas relevant to the theory itself are included.

A key concept of game theory is the notion of the "utility function," this being a numerical concept based upon the individual decision-maker's preferences of alternatives. One outcome is to be preferred over another if the expected utility function of the first is greater than that of the second. Another key concept or major assumption of game theory is that all the variables controlling all possible outcomes can be specified and given exact values. A third assumption is that each person and/or decision-making unit seeks to maximize his utility and that each player knows the utility values of all possible outcomes. The problem for each player becomes "... 'what choice should he make in order that his partial influence over the outcome benefits him most.'" If this assumption is made about all players in the game, the game is called an "n-person game." Complications arise because in an n-person game the assumption of "pure strategy" (see above) does not hold up because players modify their strategies during the game as a result of other players' actions, or because collusion or cooperation takes place.

However, in the simplest type of game examined by game theory, the outcome can be either "winning," which is assigned a

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1Ibid., p. 3. 2Ibid., pp. 4-6. 3Ibid.
value of +1, of "losing," which is assigned a value of 0.\(^1\)
These values can be said to represent utility units and for any
two alternatives, the more preferred can be assigned the utility
value of 0. Another key element (see above) of any game is
the rules of the game, for these indicate what the players know,
the moves allowed, and the possible outcomes of the game.\(^2\)
Within the limits of the rules of the game, players will at-
tempt "... to maximize expected utility," that is, they will
pick the alternatives which will speed the preferred outcome.\(^3\)

The most basic type of game for game theory is called
the "two-person zero-sum game." This is a game involving two
individual players, a finite number of pure strategies, and
"zero-sum" of utility functions. That is, if one player selects
an alternative move with a utility function of +1, his opponent
loses an equal amount of utility value (+1-1 = 0). In the two-
person zero-sum game, as postulated by game theory, the follow-
ing assumptions are made (as summarized from above): 1) each
player knows both his own and his opponents' available alterna-
tives and is aware of how the outcome depends upon these possi-
ble choices, 2) if chance is involved, each player is aware of
the possibilities and probabilities involved, 3) each player
has ranked all available outcomes in terms of his individual
preferences, 4) each player is also aware of the opponent's
preference pattern of outcomes.\(^4\)

\(^1\)Ibid., pp. 7-9  \(^2\)Ibid., pp. 41-47.
\(^3\)Ibid., p. 50.  \(^4\)Ibid., pp. 58-59.
Given these assumptions, the "Minimax Theorem" can be applied to such games. This theorem states that:

There exists a number µ, a pure strategy (a maximum strategy) for player 1 which guarantees him at least µ, and a pure strategy (a minimum strategy) for player 2 which guarantees that player 1 gets at most µ. These pure strategies are in equilibrium, and any pair of pure strategies which are in equilibrium yield a maximin and a minimax strategy for 1 and 2 respectively.

A zero-sum game is termed a "strictly competitive" game because the preferences of the players are exactly opposite and therefore cooperation, collusion, etc., are useless. If one player increases his utility, then the other player loses exactly the same amount of utility precisely because his preference pattern is exactly opposite that of the first player. In such games utility functions of sets of outcomes always equal 0.

Game theory also deals with more complex game forms including "Two-person non-zero-sum non-cooperative games." These games represent the intermediate type between two-person zero sum games (the simplest formulation) and more advanced game forms. Two-person non-zero-sum non-cooperative games involve utility functions which don't necessarily have to sum to 0 and therefore mutual gain and advancement of utility functions is impossible. If players make mutually-binding agreements before play, then the game is called a "two-person non-zero-sum cooperative game."

The third type of game analyzed by game theory is the "n-person Game in Normal Form." With this more complex type

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1Ibid., p. 71. 2Ibid., pp. 72-85. 3Ibid., pp. 88-154.
theoretical assumptions are not as firmly established but it is such games that mark the transitional area between game theory and empirical derivations utilized by the social sciences. Such games involve coalition formation, and each player expresses his "behavioral strategy" which is how each player "... might specify for each of his information sets a probability distribution over the alternatives of the set."\(^1\) Another concept in such games is the use of "side payments" among coalition members—these represent exchanges of utility values which occur in order to eliminate inequities brought about by the cooperation. What is transferred, then, is utility.\(^2\)

Examination of most games reveals that they are neither pure zero-sum (chess) or pure-coordination (charades) but involve a complex interaction of conflict and interdependence typical of bargaining situations. These are "bargaining" or "mixed-motive" games, the term "mixed-motive" referring to the mixture of conflict and interdependence experienced by playing sides.\(^3\)

... bargaining games quite typically involve a dynamic process of mutual accommodation rather than pure communication culminating in crystallized agreement ...

[In such games] ... the outcome is determined by the expectations that each player forms of how the other will play. ... \(^4\)

In such games each move made by a player transmits to other

\(^1\)Ibid., p. 159. \(^2\)Ibid., pp. 180-181.
\(^3\)Schelling, *The Strategy of Conflict*, pp. 87-89.
\(^4\)Ibid., pp. 102, 107.
players important information about the player's choices of actions available to him, and his value system.\(^1\) Information communicated by particular moves can include threats, promises, relinquishing of initiative, identification of what others' roles are, delegation of interest or initiative, mediation, and destruction of communication (all of which can also be moves in themselves).\(^2\) Another point about such games is that the payoff matrix presented earlier should not entirely dominate analysis of the game and game outcomes. Game theory also does not formally account for social processes involved in games, and these social processes are major factors in many mixed-motive game outcomes.\(^3\) For example, threats of action of a particular type often involve outcomes not completely under the control of the person making the threat. Actions by players can also raise the possibility that something will happen by chance, another factor not formally accounted for by game theory.\(^4\)

Game theory, then, represents a valuable contribution to our understanding of games, game behavior, and decision-making in situations of conflict. Some theoretical understanding enables one to better conceptualize the actual processes involved in any game and to construct models for playable games in order to root such games in a theoretical base. By understanding what is meant by such terms as "payoffs," "utilities," "rules," and "players," and how these terms are used at both

\(^1\)Ibid., pp. 101-116. \(^2\)Ibid., pp. 119-150.
\(^3\)Ibid., pp. 162-170. \(^4\)Ibid., pp. 183-189.
theoretical and practical levels, it is possible to effectively make the transition between the theory of games in its most abstract (mathematical) form and more empirically-applicable theoretical assumptions and components.¹

While game theory represents a major part of the theoretical basis of simulation games, several other elements must also be considered as relevant to such games. Many of these elements have both a theoretical and an empirical foundation and therefore are the transitional factors mentioned above. One such element to be examined here is role-playing. Role-playing is often a part of a simulation game and represents a key factor in the dynamics of the game. "The game is a system of roles in relation, and play of the game shows how that particular system of roles in relation operates."² However, it is important to differentiate clearly between role-playing and simulations, as the two terms, on the surface, appear to be about the same. Nesbitt makes this distinction by stating that role-playing within a clearly defined model of a social situation is a simulation whereas role-playing without such a context is only role-playing. That is, the role-playing must, in order to be a simulation, "... correspond to or represent the functioning of some real process or system."³ Chapin differentiates between the two on


²Coleman, "Games as Vehicles for Social Theory," p. 4.

the basis of the degree of structure, with role-playing being seen as more limited and structured than simulations.\textsuperscript{1}

Role-playing itself has been extensively used for many purposes, including the training of individuals in organizational skills and leadership functions such as problem-solving and decision-making.\textsuperscript{2} The primary feature of role-playing is "acting out" a problem or situation in order to "make it possible for the group to understand it and to discuss or cope with it."\textsuperscript{3} This "acting out" of the problem or situation helps provide "... a close-to-reality base for personal understanding and insights and for group discussion and training."\textsuperscript{4} Uses of role-playing specifically are: 1) increasing sensitivity to people and situations, 2) training in leadership and human relations skills, 3) motivating discussion, 4) developing effective group problem-solving techniques.\textsuperscript{5} It also is effective in 5) stimulating interest, 6) involving members of the group, 7) testing out solutions and procedures in a "safe" environment, 8) reducing the gap between knowledge and its application, 9) promoting increased expression of ideas, 10) increasing insight in and sensitivity to one's own and others' behaviors, and 11) changing behavior.\textsuperscript{6}

\textsuperscript{1}Chapin, "Simulation Games," p. 798.


\textsuperscript{3}Ibid., p. 18. \textsuperscript{4}Ibid., pp. 18-19.

\textsuperscript{5}Ibid., p. 21.

\textsuperscript{6}Savage, Interpersonal and Group Relations in Educational Administration, pp. 286-294.
In order for role-playing, and thus simulations incorporating role-playing into them, to be most effective, the problem which the role-playing is centered upon should be of major concern to the group involved, the incident role-played should be very specific and clearly defined, the situation should be designed to promote challenge and some conflict, and emphasis should be placed upon playing one's assigned role and not one's self.¹ Basically, then, role-playing—when successfully applied—should create "... a full, inner feeling about a situation from acting out how other people actually feel in a situation."² This can result in attitude changes, because in role-playing the individual sees that his behavior is a result of his personality combined with the situation and the role he is in.³ It can also result in intellectual, incidental, emotional, and experiential learning.⁴

When specifically applied to problems involving decision-making, role-playing has also been found to be very effective. Dilley has utilized role-playing as one technique to develop better understanding of decision-making processes in higher education, especially in situations involving "troublesome" or hard-to-decide cases.⁵


²Jean Goldfarb and Frank Riesman, "Role-Playing with Low Income People," Learning Games, ed. by Tom and Susan Isgar, p. 30.

³Ibid., p. 33.

⁴Ibid., pp. 33-34.

⁵Dilley, Higher Education: Participants Confronted.
Each decision is really only one link in a chain of decisions. . . . Role-playing any aspect of the chain elicits a better understanding of the dynamics and induces, to some degree, the emotions involved in being in a disturbing situation. When a person becomes involved emotionally, he typically reacts with less reason and control. This pattern tends to complicate the matter, and a student can learn how such emotions and reactions influence the outcomes of decisions by actually experiencing such dilemmas.\(^1\)

Role-playing represents one aspect of simulations that must be understood and effectively utilized for maximum positive results. It can be a valuable tool to promote understanding of and sensitivity to one's own behavior and personality, the personalities and behaviors of others, interpersonal dynamics, and decision-making.

Another element of games is that of interpersonal dynamics. Simulation games involve people as individuals and groups, but a vital element, in such games, is the interaction between these people.\(^2\) The competition factor, along with strategies developed, tactics used, and players' behaviors, are always in relation to the other players and their actions and responses. The particular model used for a given game plus the rules of the game largely determine the nature of this interaction. They set goals for players, point out to the individual player what he has available to meet these goals, and delineate for him what he can--and cannot--do to obtain these goals. Further, interaction

\(^1\)Ibid., p. 3.


\(^3\)Ibid., p. 95.
in games and the interpersonal dynamics involved are directly tied to the roles that the participants play in the games. It is these roles that enable the players to undertake achievement of their particular game goals. The players are involved in the game and interact in terms of these roles. Due to game frameworks, interpersonal dynamics occur primarily in terms of instrumental behavior, rather than the expressive behavior seen in role-playing. It becomes imperative for players to not only understand their own roles, but also to understand the roles of other players and the nature of the interaction itself if they are going to develop "winning" behavior patterns. Thus simulations generally are concerned with interpersonal dynamics within a specified framework (the game) which is based upon a larger system (the model) derived from reality. Players focus upon their roles, the interpersonal dynamics, and goal-attainment while still keeping the total system in focus.  

As has been pointed out by Savage, Verba, and others (see previous sections), interpersonal dynamics and skills in dealing with such dynamics are key factors in any organization, particularly administrative entities. Games, particularly those used as training devices, use the interpersonal dynamics created in the game as learning experiences for the players. Facts can be learned, but the stress in such games is often upon learning

1 Ibid., pp. 93-95.  
2 Ibid., pp. 95-98.  
particular types of interpersonal skills through the "... social and political experience ..." of the players.¹ Which types of these skills are learned? In games involving role-playing, as with much role-playing, it is postulated that one skill learned is that of effectively seeing problems, concerns, and situations from another's point of view, thus enabling one to work better and more closely with others to reach solutions to common problems.² Homans, in a study supporting this concept, has found in studies of group behavior that the more frequently people interact with one another, when each originates the interaction with a frequency about equal to the other's, the greater is their liking for the other and the more comfortable they feel in each other's company.³

In using role-playing, many games are able to elicit the emotional content of a particular situation. Techniques not relying to any great extent upon interpersonal dynamics often overlook the fact that emotions can play a key role in such areas as decision-making and objective analysis of situations involving a crisis (see Dilley's comments cited previously).

Besides teaching players to deal with the emotional content of a situation, games are also seen as vehicles for teaching negotiation skills. The theoretical literature on games often speaks of negotiations in terms of utility functions (see

¹Dilley, pp. 1-2.


³Dilley, p. 3.
previous sections on "utility" in game theory). ¹ Bert R. Brown has applied such theoretical concepts by creating an "experiential" laboratory using simulation games to train people in negotiation skills. ² This lab and the techniques used in it are specifically designed to "... increase understanding about the interpersonal processes of negotiation" and 2) to "develop a diagnostic framework for the analysis of 'own' and others' bargaining behavior." ³ A basic assumption of Brown's work is that experiential situations, such as games, can effectively develop such skills in people and thus better prepare them for real situations where these skills must be used.

The interpersonal aspects of games also enable players to learn to handle a great quantity and variety of information from many types of resources, and to effectively use this information in problem-solving. ⁴ This particular skill is demanded of those in positions of major responsibility in many organizations, as the amount of information and the number of resources increase manyfold. Decisions must be made based upon huge amounts of often-conflicting but usually relevant material. Games enable players to develop greater selectivity and


³ Ibid., p. 1.

⁴ Burgess and Robinson, pp. 245-246.
to more rapidly and accurately process such information.

Games also provide rich opportunities to learn effective strategies and skills for dealing with such a situation in real life. In a study using an interpersonal game, Schild found that, over repeated playings of the game, players learned to approximate optimal strategies more and more. Schild thus postulates that the game has certain reinforcing properties which "shape" the players' strategies. This "shaping" of behavior occurs in a game more rapidly than in real life, Schild believes, because: 1) the simulation simplifies real life, enabling the crucial factors to be better understood and adapted to, and 2) the simulation provides much more rapid feedback than real life. In another article Schild points out that development of effective ("winning") strategies enables players to experience a feeling of control over outcomes and the interpersonal environment. Belief in one's own ability to control outcomes or the environment appears to be related highly to learning, the article states after examining some studies done in this area. Direct learning (facts, etc.) seems to be most related to belief in one's ability to control outcomes. However, many interpersonal skills appear to be based more upon one's environmental control beliefs. Thus, "... the presence or absence of control beliefs may affect behaviors.


which are basic to social life."\(^1\) And simulation games appear
to be a very effective technique for altering individuals' con-
trol beliefs, especially control beliefs related to the envi-
ronment, by teaching optimal strategies in an experiential
manner. Cruckshank and Broadbent deal with the above issue in
terms of feedback provided by a simulation.\(^2\) Like Schild, they
state that feedback provided by a game shapes the behavior of
those playing it and results in "correct" (appropriate for the
simulation and particular players' goals) behavior.

Models

A key element in the construction and playing of a sim-
ulation game is the conception of the model. Many authors
writing about simulations see them as "operating" models of
reality and discuss the relationship of a given model to real-
ity and to the game based on this model.\(^3\) The term "model," as
used here, refers to "a physical or symbolic representation of
all or some aspects of a social or psychological process."\(^4\)
Such models are dynamic in that their emphasis is not only upon
selected elements of reality, but also upon the processes occur-
ring among these elements.\(^5\) These models, of necessity, are
also simplified versions of reality. Certain elements and
processes of reality that are determined to be essential to the

\(^1\)Ibid., p. 101.
\(^2\)Cruickshank and Broadbent, pp. 17-18.
\(^3\)Dawson, p. 3; Nesbitt, p. 3.
\(^4\)Dawson, ibid.
\(^5\)Ibid.
area of concern are extracted from reality and incorporated into the model.¹

A major concern in creating basic models and developing operating models (simulations) is the relationship of the model to reality, its "validity." Is the model an accurate representation of reality? Are the elements incorporated into the model the key elements in the reality under study? Does the operating model (the simulation) produce processes that replicate those in reality? These questions, and their respective answers, are of prime importance to those constructing models and translating them into games playable by humans. If all three questions can be answered "yes," then the simulation and model are said to have high validity--the model is completely isomorphic to reality.² For example, Guetzkow did an extensive study of the correspondence between real-world behavior and behavior produced in his Inter-Nation Simulation. He determined that about two-thirds of the behavior in the simulation was somewhat similar or very similar to what actually took place in reality.³

However, it is possible to define validity in another way, as Smoker points out.⁴ Validity can be seen as "defining

¹Nesbitt, op. cit.


³Ibid., p. 7.

⁴Ibid.
patterns of correspondence and non-correspondence in terms of the model construction process itself." From this standpoint validity becomes "... the degree to which the predicted and actual correspondence patterns coincide. The predicted correspondence pattern relates to the mapping of perceived reality in the model."¹ If the validity of an operating model is viewed from this standpoint, the interest of the game can be centered upon a single type of behavior and its accurate reproduction to the exclusion of other behaviors. This centering of interest more readily enables prediction of behavior to take place in a game.² For example, if the concern of an operating model is with conflict behavior patterns, and the patterns of conflict behavior exhibited by game players accurately reflect real-life patterns of such behavior, then the simulation is generally valid, despite other behavior patterns exhibited not being similar to those in reality.

Cruickshank and Broadbent define two basic types of operating models that may be used.³ These basic types are defined according to the feedback system incorporated in them. The first type is called an "open loop" simulation. In such a simulation the primary variables affecting the individual player cannot be controlled by him. Therefore he must adjust to these variables. In the "closed loop" simulation players can interact with and manipulate the variables. Because all

¹Ibid.  
²Ibid., p. 8.  
³Cruickshank and Broadbent, pp. 3-5.
simulations incorporate feedback systems, one of these two types can always serve as a useful starting point for understanding the total system.

Game Design: Some Considerations and Steps

Many factors must be taken into consideration in designing and constructing a simulation game. Those involved in these phases of simulations list a variety of points that range from the very general to very specific, but all of which are valuable working guides. The key element in the design and construction of a social simulation game is the process of abstracting from reality (see previous section on "Models").

Van Der Eyken, for example, says that the successful game design (successful in teaching selected skills) incorporates very little luck in it and also is "open-ended" (allows maximum transfer of learned skills to real-life situations). Cohen makes a similar statement about this consideration when he says that the game design must be successfully related to the major purpose for which the game is to be used. Like others, Boocock and Schild recognize that, at best, designing a successful simulation is an art. Continuing, they state that game design must involve consideration of what content the

1 Coleman (preface), pp. 7-10.
2 Van Der Eyken, p. 1589.
3 Cohen, p. 370.
game is to teach, the type of players it will be most effective with, and whether or not the game itself is the most satisfactory means for conveying the desired information.¹

Coleman's approach to game design is somewhat more specific because he focuses upon the social environment aspects of the game.² For him, each player in the game functions as a part of this social environment. The rules of the game must therefore set up players' roles and also account for actions and/or responses of parts of the environment necessary for the game but not represented by the players. In setting up players' roles, "... each player's goals and role constraints must be accurately embodied in the rules."³ Thus, from his standpoint, the major element in game design consists of these rules. Coleman lists five major types of game rules, including the following: 1) procedural rules--describe the order of events (play) in the game and how it starts. These rules usually follow the real order of the environment being simulated. One type of procedural rule is the "mediation rule" which states how a crisis is resolved; 2) behavior constraints--these are the role descriptions and limits for each player; 3) goal statements and means for goal achievement--the specified goals and the means available to players to achieve them must be correctly specified and correspond to real-life goals and means of

¹Ibid., pp. 19-21.
³Ibid., p. 32.
actual counterparts; 4) environmental responses rules—these rules account for responses of parts of the environment not included in the interpersonal parts of the game; 5) police rules—these rules specify what happens to those who break the regular game rules. Coleman sees the above rules, particularly #3, as essential to any game. Rules specifying goal statements and means for goal achievement are central because, Coleman states, it is goal specification which is the chief method used to incorporate theoretical assumptions into the game.

Another aspect seen by Coleman as being central to effective game design is what he terms "exchange processes." "Exchange processes" are those processes of trading psychological factors (acceptance, aid, etc.) carried out by game players. Exchanges are between players (individually or as groups), or between a player or playing group and the social environment of the game. Exchanges between players must be mutually rewarding (helpful to each player in attaining his individual goals). Exchanges between a player and the environment are accounted for in the environmental response rules explained above, and are manifested in the reward or punishment a player receives for his particular action. In both simulation games and social processes it is control, either partial or total, over actions which is exchanged. This idea of control over actions, and the exchange process itself are key points for Coleman.

1 Ibid., pp. 32-35.  
2 Ibid., pp. 37-38.  
3 Ibid., pp. 39-45.  
4 Ibid., p. 45.
The possibility of conceiving of all social interdependence in terms of interdependence of actions that can lead to mutually profitable exchange of control over actions suggests that all forms of social interdependence can be mirrored by social simulation games.1

Morris Zelditch and William Evan focus on a major issue of game design, the artificiality of the simulation.2 Artificiality, as used by Zelditch and Evan, refers to all the elements of the game, including the game's simulated environment, the described motivations of players, and the values of the independent variables. They conclude that, in designing a game, one should be sure that its properties function in the same manner as the properties of the real environment it is simulating. Robert Meier, et al., focus upon this same issue in terms of the designer's need to define the boundary between the areas and processes included in the game and those excluded from the game.3 In setting this boundary there is always a conflict between the need for simplicity—which can result in the artificiality discussed by Zelditch and Evan—and the desire for realism.

Meier, et al., also raise another factor for consideration by the game designer, this factor being the scoring of the game.4 How the game is scored will play a considerable role in

1Ibid., p. 45.


3Meier, Newell, and Pazer, p. 203.

4Ibid., p. 188, pp. 203-205.
determining the total game design. As Meier, et al, point out, scoring basically represents the incorporation of a feedback system into the structure of the game. What method will be used to accomplish this must be determined by the game designer. Coleman sees two general approaches to scoring outcomes of a game. The first of these Coleman calls the "absolute" approach. This approach means that, at the end of the game, a winner and a loser(s) is designated in some manner. In the other or "relative" approach, each player's or team's success is compared relative to the success achieved by other players. Cruickshank and Broadbent provide an excellent statement of the importance of scoring in the game:

... Participant responses are evaluated (rewarded or corrected) according to normative data. ... Since the variables at play in such a real setting are almost infinite and exact combinations of variables would be required in order to predict ... behavior, the norms provided are at best estimates or at times "guesstimates."²

The entire question of game scoring (feedback) is closely connected to another major consideration in designing games, the role of the game administrator. As Cruickshank and Broadbent point out in their discussion of scoring, most systems for providing feedback require considerable skill on the part of the game administrator.³ John D. Baldwin discusses the interaction of the game administrator with the players extensively in his paper, "Influences Detrimental to Simulation

²Cruickshank and Broadbent, p. 18.
³Ibid.
Gaming."¹ Baldwin states that all-too-often it is both the subtle and not-so-subtle influences of the game administrator that determine the players' behaviors and give the total game the appearance of modeling the system it seeks to simulate. Ideally, it should be the structure of the game itself which shapes players' behaviors, not the influences of the administrator and/or game designer. For the player's perceptions of the expectancies established by the game administrator and/or designer can lead the player to develop inappropriate (maladaptive) behavior in the game. Correct or desired behavior is developed through behavioral shaping or communicating to players what type of behavior is desired (two basic feedback processes). But both of these processes only insure that the players will seek to adopt behavior that the game director believes is appropriate. These expectancies of the game director can be communicated to players by a number of means, including: 1) direct instructions to players, 2) application of labels to game elements, these labels suggesting certain strategies for players, 3) too many rules, excessive payoff systems, etc., that guide the player to one type of behavior, and 4) repetitions of the simulation until the players develop the desired strategies. Baldwin finally recommends the use of sophisticated and well-prepared players to eliminate or reduce biases incorporated into the game by the designer and also the

subtle influences of the game administrator.

Some authors have attempted to provide useful guidelines for game designers by incorporating the considerations above into a series of steps to be followed in developing and using a simulation game.¹ These steps are beginning to be called the "simulation methodology."² The steps include the following:

1) Formulation and analysis of the problem area
   (includes analysis and description of the total system being simulated plus statement of basic assumptions).

2) Construction of either a logical or mathematical model of the system being simulated.

3) Development of an operating version of the model--the simulation--using human players and/or computers.

4) Refinement of the model through continued playing, evaluation, and modification of the game.

Step 3, the development of the simulation itself, actually has several sub-steps which have been outlined by Mize and Cox as follows (these also overlap step 4):

... 1) Select a set of operating rules. 2) Select a set of values for the attributes of each component. 3) Observe


²Mize and Cox, p. 138.
the resulting effects and interactions between system components. 4) Measure the total system performance.
5) Select a new set of values for the attributes of each component. 6) Repeat steps 3, 4, and 5 the desired number of times. Select a new set of operating rules. Repeat steps 2-6 until all alternative policies (sets of operating rules) have been tested. 7) Select the best policy.

Advantages and Disadvantages

Simulation gaming, as a technique of education, would appear to have many advantages—and some disadvantages—over other educational methods. Dawson points out that simulation games, like any tools, must be evaluated from the standpoint of such factors as applicability, cost, simplicity, and the ease of communicating the technique to others. He cites one of the major advantages of simulations as enabling one to study processes in ways not normally permitted by nature, and to study problems that cannot be studied in real life. Dawson also points out that simulations enable real time to be compressed or expanded by the experimenter.

Nesbitt focuses upon the advantages of games related to what players can learn from them. Specifically, by playing simulation games, Nesbitt claims one can learn about: competition, cooperation, empathy through sensitivity to one's role, the social system modeled, history, concepts, goal attainment and communication skills, critical thinking skills, good strategy, and the role of chance. Kersch classifies the areas cited

1Mize and Cox, p. 6.
3Nesbitt, pp. 29-38.
above into three basic dimensions of experiences provided by simulation games. These dimensions are: 1) affective-cognitive, 2) process-oriented-content-oriented, and 3) self/system evaluation-instructor evaluation. She concludes that Simulation allows the individual to actively participate in activities which parallel real-life situations and to gain experience and skills in decision-making and problem-solving techniques.

Tansey also deals with the nature of learning processes in simulation games, stating that "... simulation training has been designed to give relevance to what is being learned, extending this relevance to skills that will be needed at some future time." Tansey supports his statement by citing several studies of the effect of using simulation games for training student teachers. Results of these studies showed significant increases in subjects' self-confidence in their ability to teach, in their ability to correctly predict student behavior, and also resulted in changes in student teacher behavior. Additionally, the ratings of performances of student teachers in simulation experiences were good predictors of the ratings they would receive in student-teaching practice.

Clark Abt sees games as being effective educational

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2Ibid., p. 3.


techniques because they increase greatly players' motivation, they can instruct in both facts and concepts at the same time, and they dramatize the problem.\(^1\) These factors help produce the "active learner," and promote a "systems" understanding of a complex problem and its possible solutions.\(^2\) Abt sees games as particularly useful in teaching intuitive problem-solving and decision-making in situations where information and/or resources are incomplete or limited. Games effectively utilize peer instruction and enable the individual to learn in accordance with his own capabilities, yet with realistic conditions.\(^3\) Games used for planning and problem-solving "... provide a mode of experimentation with alternative strategies and tactics in a competitive and constantly changing environment."\(^4\) Such games enable one to clearly see the relationship between decision-making and results. Goldhamer and Speier, in examining this type of game, agree that it effectively enables players to see how particular strategies, when used, can succeed or fail. Players also acquire a much better overview of the total situation and are able to acquire much information about a situation.\(^5\)

Hodgetts, in an extensive review of games used for management training, examines some of the educational benefits of

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\(^{1}\) Abt, *Serious Games*, p. 13.

\(^{2}\) Ibid., pp. 18-19.

\(^{3}\) Ibid., pp. 20-26.\(^{4}\) Ibid., p. 89.

\(^{5}\) Goldhamer and Speier, pp. 268-270.
these games. His review and studies of the impact of management games leads him to conclude that they teach players to:

1) set objectives and operate with them in mind;
2) make operational decisions, review them, and make others in light of the findings;
3) develop a balanced approach by putting emphasis on all functions rather than only a few;
4) realize the importance of short- and long-range planning;
5) assume a role ... and hold prime responsibility for that area; and
6) depend upon one another and work as a team.¹

Isgar and Isgar, who have developed many games related to college students and their interaction with the institutions of higher education, see games as having tremendous advantages in training people to develop problem-solving skills rather than merely solving a particular problem. The reason for games' ability to develop these skills is that they enable players to rehearse and practice problem-solving and develop an understanding of power and authority relationships.²

Cruickshank and Broadbent, in their study of games used for preparing school personnel at all levels (teachers and administrators) also cite the relevancy of games.³ Games are particularly relevant because they are based upon models of reality. They also provide considerable insight into one's own behavior and aid one in better controlling his behavior. Or, as the authors state, "... the opportunity to confront real problems in hypothetical settings permits one to work toward

¹Hodgetts, p. 65.
³Cruickshank and Broadbent, pp. 30-31.
gaining intellectual control over behavior."¹ Games help also
to promote players' knowledge of group dynamics and aid the
improvement of individuals' skills in group techniques.²

John Raser develops an extensive overview of the entire
field of simulation games in his excellent book, Simulation and
Society: An Exploration of Scientific Gaming. All types of
simulation games generally have four major advantages, accord-
ing to Raser. These advantages are: 1) economy--simulations
represent a simple and usually inexpensive method of training
or teaching individuals or studying phenomena; 2) visibility--
simulations enable the totality of some area to be seen much
more clearly than by other methods, yet enable one to highlight
and bring into sharp focus selected segments of an area; 3)
reproducibility--simulations enable an area, situation, or
series of events to be recreated as many times as is needed for
careful study; and 4) safety.³ Safety is a key advantage of
simulations, especially those dealing with problem solving and
crisis prevention. As used by Raser, and also Cruickshank and
Broadbent, "safety" means safe in terms of consequences of deci-
sions. That is, in a simulation game involving decision-making
individuals can make decisions in a realistic environment, see
the outcomes of these decisions, and yet not have to pay real-
life consequences for making such decisions (especially faulty
or bad ones).

¹Ibid., p. 31. ²Ibid., p. 32. ³Raser, pp. 15-19.
A classic example of this safety factor in simulation can be found in the use of the Link Aircraft Trainer. The Link Trainer is a complete mock-up of an aircraft cockpit (enclosed on all sides), and is capable of a variety of motions in all three dimensions. The person in the trainer must make decisions about "flying" the trainer based only upon readings on his cockpit instruments (readings are simulated from an exterior control panel and can be changed realistically by the controller). All of the trainee's decisions (how he "flies" the trainer) are recorded and the trainer responds to his decisions as if it were an actual plane. But wrong decisions, which could result in the crash of a real airplane and have fatal consequences for the pilot, here are only recorded on a chart and reviewed with the controller at the end of the session.

Because simulation games represent a relatively new technique, there are several disadvantages or "weak points" associated with them. Some of these disadvantages may be corrected through more extensive study of games, while others may be inherent in the technique itself. Indeed, as Nesbitt points out, very few games are available for general use but even fewer have been extensively evaluated.\(^1\) Nesbitt also examines some other criticisms of games in the light of the advantages cited in using simulations.\(^2\) Specific criticisms include: the belief that simulation games tend to present to the players an over-simplified view of reality, the possibility that behavior

\(^1\)Nesbitt, p. 38. \(^2\)Ibid., pp. 39-44.
model used is not complete or is inaccurate, the possibility that behavior constraints in the game are unrealistic, the effect of the players' awareness of the artificiality of the game situation, and the lack of study of games' effects upon players' attitudes and values.

P. J. Tansey supports Nesbitt's latter criticism by pointing out that most evaluations of the effects of simulation games are only subjective. He attributes this to the lack of availability of adequate evaluation techniques and calls for considerable research efforts to develop such techniques.¹ Dawson reflects another of Nesbitt's criticisms by stating that "The central problem inherent in all simulation processes is . . . that of adequate reproduction of the real system."² Raser also focuses upon the lack of evaluational techniques and sees a major concern of those seeking to develop evaluational techniques as being the determination of what precisely games do teach before measurement of their teaching ability and power can be undertaken.³

In her general discussion of simulation games, Chapin also points out the lack of instruments to measure the effects of the games. She additionally reviews several problem areas revealed by some of the research studies of simulation games. For example, some studies have shown that the teacher or game

¹Tansey, p. 300
²Dawson, p. 13.
³Raser, pp. 132-133.
administrator can play a considerable role in influencing the
general tone of the game. Other studies have raised the gen-
eral question of whether or not outsiders (non-participants)
should even evaluate simulation games as they can influence
the activities and environment of the game. Few studies have
been done measuring the short- and long-term effects of games,
either.¹

Cruickshank and Broadbent, after studying the varieties
of simulations used for the preparation and training of school
personnel at all levels (grammar and secondary school through
college), present four general "issues" related to simulations
and in need of resolution by those dealing with the technique.²
The first issue is related to their discussion of feedback in
simulations (see previous section for their comments on feed-
back per se) and the fact that most feedback systems incorpo-
rated into simulations make use of highly-subjective norms,
thus often necessitating a very skilled and sensitive game ad-
ministrator. The second issue, already alluded to earlier also,
is realism in the simulation--how "real" or "life-like" should
it be to accomplish its purpose. Simulation specialists have
not reached any agreement on this point or even the importance
of realism to the players. Some even attempt to solve the prob-
lem by determining first what player behavior is desired and
then finding out how realistic the simulation has to be in

¹Chapin, p. 803.
²Cruickshank and Broadbent, pp. 17-28.
order to elicit this desired behavior.

A third issue in need of resolution, according to Cruickshank and Broadbent, revolves around the question of process versus content. Should the simulation be a teaching device in itself or should it seek to provide a realistic but safe environment within which players can practice behavior learned elsewhere? Related to this issue are the lack of understanding of such areas as the effects of the size of the group, the length of the simulation, and the role of the director-administrator. Typically, many game developers see the simulation director as one who facilitates the learning of the players. Others see him as only responsible for setting the scene and keeping the players involved at the needed level. Cruickshank and Broadbent cite one study of a simulation of a classroom (used for teacher-training) where the researcher determined that instructor differences contributed more variance to the study than did the treatment variables (the simulation and the control experience).

The fourth issue is related to two factors mentioned by other authors, namely: "... (1) evaluation or appraisal of participant behavior during the simulation and (2) transfer of training to the reference system."¹ Most games do not specify outcomes or do so in very general statements. The authors point out that those simulations which clearly give the physical setting of the simulated environment, and detail

¹Ibid., p. 25.
characters and events are the simulations that can most easily specify outcomes. Unfortunately, few simulations fall into this category.

In concluding this section, we might point out that the technique of simulation games, like other recent interpersonal techniques, lacks a sufficient body of evidence from which its real values can be objectively judged. This may in part be caused by the fact that simulation games represent a technique with applications in a wide variety of disciplines, thus resulting in a lack of "pooled" knowledge about the technique. Another cause for the lack of evidence is the newness of the technique itself and the often-unsupported enthusiasm of those engaged in the development and playing of such games. It presently is possible—and rather common—to become aware of simulation techniques, develop a game, and market or use it without ever laying the theoretical groundwork, developing an adequate conceptualization of the model, "piloting" the game through its early stages, and carefully evaluating its results in terms of specific objectives.

With regard to the latter point, a very real disadvantage to using simulation techniques is the lack of adequate means of evaluation or even of what they accomplish that can be evaluated. An analogy might be made between simulation games and another, more widely used interpersonal technique, the "T-group" or sensitivity training. Like games, sensitivity training still lacks an adequate body of objective knowledge of its short- and long-range effects, what specifically is learned,
and the ingredients of a "successful" sensitivity session. Also like games, sensitivity training has both its proponents and opponents, and each of these groups can marshal considerable evidence to support its particular views. And unfortunately in both areas it is still possible for almost anyone to become an "instant expert" by virtue of minimal involvement. It all begins to sound like the person who claimed he had a "most fantastic" girlfriend, but couldn't describe what she looked like or her personality.

Applications

Raser, in his overview of simulations, states that simulations are extensively used in five major fields, which are: a) management and business, b) economics, c) political science and international relations, d) sociology, and e) education (for teaching and research). Additionally, he points out, simulations are used in a variety of other areas. In this section the author will attempt to provide a brief overview of some of the games available in these fields in an attempt to give the reader some conception of the scope of simulations and the many applications of simulation techniques. Many of the games cited were reviewed, or, in some cases, played by the author to assist him in developing the pilot and final versions of the simulation presented in this paper.

Management and business simulations have found widespread acceptance among those in the field and those training

\[^1\]Raser, pp. 46-65.
new personnel for this field. The Top Management Decision Game and its predecessors were developed by the American Management Association during 1956-57 and first used with actual players in 1957.¹ This game is used extensively for management training of students and those already in the field. Many schools of business utilized the Top Management Decision Game or developed similar games and by 1962 a study revealed that two-thirds of the "major" collegiate business schools were using simulation games for business training. Some of the games developed are termed "general management" because they attempt to simulate all phases of the management experience. Other games are called "functional management games" because they focus upon particular organizational problems. The former games more often than not are concerned with sequential decision-making, have few chance elements, and are computer-scored.

Functional management games have more chance elements and generally appear to be more oriented towards the interpersonal dynamics of management. Many management games use what is called "programmed play" where each team makes a set of decisions at the start of the game and each set of decisions becomes the program (usually on a computer) for future decisions, thus putting emphasis on long-range planning. Most management games are primarily concerned with training players in making decisions related to achievement of maximum efficiency

of operations with the minimum of cost. Increasingly, however, management and business simulations are also being used to find the best possible organizational structure or to analyze systems used in production, planning, etc. ¹

An example of the functional management game is The Decision-Making Game developed by Darden and Lucas. ² This game is concerned with making decisions related to production. In the game each team makes all decisions about a simulated production department and sees how these decisions affect the department's output. Included in the game is the concept of randomness in decision-making so that players learn to account for random and uncontrollable factors affecting production.

Another business and management simulation has been developed specifically for training executives of small businesses in decision-making. ³ After a study of the effectiveness of this simulation in training participants, the authors concluded that it has "... unusual potential as an effective training medium ..." if used with parallel discussion and analysis. ⁴ Specific aspects of its training value include:

¹See also Hodgetts; also James L. McKenney, Simulation Gaming for Management Development (Boston: Division of Research, Grad. School of Bus. Admin., Howard University, 1967).


⁴Ibid., p. 89.
Use and analysis of environmental information as a basis for the rational planning of future operations; appreciation of the functional relationships existing within the total enterprise and of the necessity for coordinated decision-making; recognition of the need for adaptive behavior in responding to the demands of a particular environment and . . . the need for objectively evaluating environmental information and action upon it, rather than upon preconceived notions of correct behavior; illustration of the importance of specific basic principles . . . [of operation].

Stanley Vance has developed a business game for management development of top-level company personnel. In this game each team organizes along the lines of the structure of top-level management. Each team is then given a market position and has the basic objective of increasing its share of the market (causing the other companies to lose some of their shares of the market). In order to give a greater sense of reality to the game, and to enable players to use their knowledge of current business trends, the Business Index from Business Week magazine is used in the game. The game is played over a period of several weeks and "corollary" assignments are given in conjunction with the game to aid in the development of relevant concepts.

Another example of a general management game is the Carnegie Tech Management Game. In this game several simulated

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1Ibid., p. 90.
firms are set up, each one of which must produce a marketable product and make all decisions associated with it. Players act as major executives in three competing firms. Study of results of the simulation revealed that it: trained players to "... abstract, organize, and use ..." information coming from a variety of sources; increased players' ability to predict and plan; enabled players to combine "... the role of generalist and specialist"; and engendered the "... ability to work effectively with other people."¹

In the field of economics several simulations have been developed to teach concepts of economic theory and facts of practical economics. For example, Consumer is a game designed to teach teenagers the economics of installment buying, particularly the value of comparison shopping for credit. In a study of the effects of this game upon 166 players, Gerald Zaltman found that the more actively a player became involved in the game (in terms of frequency of borrowing), the more he would learn about installment buying.² Raymond C. Anderson also studied the effects of Consumer in teaching three specific behaviors through classroom instruction. He found no significant difference between the two techniques in terms of teaching these three behaviors, and concluded the game was "at least" as

¹Ibid., pp. 114-116.

effective as the classroom method.\textsuperscript{1} Examples of other economics games include \textit{Empire}, \textit{Market}, and \textit{The Sumerian Game}, all of which are designed to teach principles of supply and demand, trading, investment, etc.\textsuperscript{2}

The field of political science and international relations has seen extensive application of simulation techniques over an extended period of time. As has already been mentioned, political gaming is a direct outgrowth of war game techniques developed during the 1800's and the early 1900's.\textsuperscript{3} Extensive use of political games in planning foreign policy and sharpening players' understanding of the complexities of international relations proved the value of simulation techniques in this field long before other areas had examined the feasibility of using such techniques. The Rand Corporation's game (see previous section) represented a breakthrough because it was developed specifically as an educational technique with wide application, rather than being a game for government officials and policy-makers.

The Rand Corporation game led to the development of the \textit{Inter-Nation Simulation} by Harold Guetzkow of Northwestern University.\textsuperscript{4} The \textit{Inter-Nation Simulation} (INS) is probably one of

\begin{itemize}
  \item \textsuperscript{1}Raymond C. Anderson, "An Experiment on Behavioral Learning in a Consumer Credit Game," \textit{Simulation and Games Journal}, Vol. 1, No. 1 (March, 1970), 43-54.
  \item \textsuperscript{2}Nesbitt, pp. 19-21.
  \item \textsuperscript{3}Goldhamer and Speier, pp. 262-270.
  \item \textsuperscript{4}Harold Guetzkow, "A Use of Simulation in the Study of Inter-Nation Relations," \textit{Simulation in Social Science: Readings},
the most widely used and evaluated games in use today. It has been found to have significant educational value for a great diversity of people at many levels of educational attainment. In the game each group of one to three players represents decision-makers in one nation and seeks to attain its particular goals while staying in office. Each "nation" is allocated particular resources at the start of the game, and can use these resources internally or in its relations with other nations. Modes of action available to each nation include diplomatic, military, and/or economic strategies. Outcomes are determined both by "rigid" rules and subjective judgments of observers, who decide how well each nation has achieved its unique goal. INS players have reported that they feel they are learning to make decisions under realistic pressure, that they are applying their knowledge, and that playing the game helped motivate them to learn more about international politics.

Another political science game which has been evaluated in an objective manner is the Legislative Game, which is designed to simulate typical legislative negotiation and decision-making processes.¹ Boocock used a pre-test post-test design with questionnaires being administered to 1200 students ranging

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in age from 13 to 20. Results of this study of the Legislative Game (and another game) indicated that three types of learning took place. These are: 1) vicarious learning—the game provided vicarious experience for the players. They felt that they understood the complexities, problems, and pressures of the legislative process more realistically and "knew" much more completely what it felt like to be in the situation. Related to these points, players also exhibited several changes in attitude and became more open-minded about the views of others; 2) intellectual learning—players learned how the model upon which the game was based actually works and gained a better understanding of the real processes involved, rather than having an idealized (and often unrealistic) view of these processes; 3) development of a feeling of efficacy—efficacy, or one's sense that he can understand and control his environment, has been found by researchers to be a key factor in predicting school success. After playing the game, it was found that players had gained the confidence to actually utilize their intellectual knowledge in a meaningful manner and felt more capable of and confident in their ability to control the environment. Cleo Cherryholmes reported essentially the same findings in her extensive study of the INS discussed above.1 Other political science simulations include Credibility Gap, a board game based upon the assumption that the government is falsifying informa-

tion and involving players in detecting the truth, and the technical *Simulation of Committee Decision Making in a State Legislative Body* (a computer simulation).¹

Sociology simulations are still not very plentiful, although some excellent examples have been developed. The lack of such simulations may be some indication of the complexity and diversity of the field of sociology itself rather than a reflection upon the applicability of simulation technology to sociology. William Gamson has developed a very comprehensive simulation of a social system in *SIMSOC*.² *SIMSOC* (for "Simulated Society") was developed to enable college students to more clearly see social science materials and their applications, and to examine the total process of conflict and social control. Each of the seven basic groups in *SIMSOC* represents a different segment of the society and each group has its own particular goals, position in the society, and salary level. Groups are: 1) Basic Industry, 2) Innovative Industry, 3) Party of the People, 4) Society Party, 5) Employee Interests, 6) Mass Media, and 7) Judicial Council. Each player in the game also has outlined for him his life as a private citizen, including his political affiliation, his subsistence, travel rules, absenteeism, unemployment, death, and his own personal goals. Players


can also form public programs, a government, a police force, etc. if they want to.

In SIMSOC all playing groups attempt to affect the "National Indicators," including Food and Energy Supply, Standard of Living, Social Cohesion, and Public Commitment, by undertaking selected courses of action consonant with their goals. At the end of each playing session the instructor calculates the levels of these National Indicators and reports them to the players before the start of the next game session. These changes alter the basic incomes of all playing groups.

SIMSOC's game materials are very complete and include all necessary players' and instructors' forms, a simulated currency, and well-prepared handbooks for players and the game administrator. Gamson sees SIMSOC as an integral part of coursework, including regular sessions, and he has included in the players' handbook a carefully-selected set of readings to provoke and stimulate the players and assist them in integrating the game with their other experiences. These readings cover simulation techniques, philosophy, social theory, and related areas and provide a useful backdrop to the game.

Tom Isgar, who, with his wife Susan, has done much work with applications of simulations to issues raised by college students, developed a unique sociological simulation of the poverty experience and demonstrated that simulation games can be created in a variety of situations. ¹ While on a long bus

ride with a group of students, Isgar decided to simulate a poverty community to enable the students to experience the "trapped" feeling often expressed by those in such communities. In this game the rear sections of the bus (a two-level bus) were designated as poverty-stricken. Those in the front of the bus were designated the "establishment" and had control over food (lunches), air conditioning, and the rest rooms. Players from the "poverty area" wanting food or access to rest rooms had to undergo a long process of being interviewed by a "social worker," filling out forms, and meeting with the head of the "Establishment"; even then there was no guarantee they would receive what they wanted. Isgar observed that players in the "poverty area" of the bus soon learned to either abide by the rules or attempted to outwit the "Establishment." The experience, ended when a "rebellion" broke out among the "poverty-stricken" players, was evaluated by players as increasing their subjective understanding of the emotions involved in poverty and enabling them to realistically experience these emotions.

Michael Inbar undertook a study of the effects upon players of the Disaster Game, which is designed to simulate a major disaster in a community. Inbar had 220 players play the game in two sessions and used a pre-game and post-game questionnaire to measure the players' original level of knowledge and the effect of the game on this level of knowledge. Addi-

 tionally, during the game several measures were taken of the players' understanding of the rules, and the extent of their interest and participation in the game. Thus the primary focus of the game is not comparison of the game technique to other instructional techniques, but rather is upon the learning effects within the sample of players.

Inbar found that the major factor having the greatest impact upon players was the players' enjoyment of the game. However, this enjoyment factor was significantly conditioned by the group membership of the players. The game also had a differential impact, dependent upon group membership, in terms of the way the game developed, "... changes in active participation, in interest in the game and in understanding of the rules, as well as learning ..."¹ Other findings included significant evidence that the more the group enjoyed the game, the less the impact of the game (as to material learned) was related to the group's predisposition. Inbar concludes his study by stating that

... the process of learning is mediated by the general atmosphere in the group. ... [W]illingness to take part in the simulation because of aroused interest in the topic ... is the best warrant of a positive reaction to the session ...

... [The impact of a game] ... is very much a group phenomenon rather than a purely individual learning process. ...²

Other sociological simulations include Plans, in which various interest groups in American society are simulated and attempt to influence each other, and The Ghetto Game, which

¹Ibid., p. 174. ²Ibid., p. 182, p. 185.
teaches the dynamics of the ghetto to players.¹

As can be seen from examples cited above, games are already used rather extensively for teaching subject matter through simulated experiences related to classroom work. However, it is only recently that those involved in the process of higher education--students, teachers, administrators, and student personnel workers--have utilized simulation games for purposes directly related to the field of higher education itself. As Cruickshank and Broadbent point out,² case study and role-playing techniques have long been used by educators in such fields as educational administration, student personnel work (including counselor training) and preparation of teachers. Thus the transition to simulation games has proven to be a logical step and these fields have witnessed the development of many simulations, especially the role-playing type.

As is often the case elsewhere, students themselves have made extensive use of simulation techniques for increasing their own insight and skills in confronting the educational system. The Student Power Game represents a well-known and often-used simulation that has been developed over a period of four to five years. The Student Power Game and its many

¹Project SIMILE II, Plans (La Jolla, Calif.: Western Behavioral Sciences Institute, 1966); Urbandyne, The Ghetto Game (Chicago: Urbandyne, 1969).

²Cruickshank and Broadbent, p. 9.

³See the following: Randy Lee, "Student Power Game at the U.S. National Student Association's Catholic Conference on Higher Education"; Randy Lee, "Minneapolis Student Power Games--Forms and Evaluation"; Tom Isgar, "Student Power Role Play"; Tom and Susan Isgar, "Learning Games and Action Education"; all contained in Learning Games, ed. by Tom and Susan Isgar.
variations basically are role-playing simulations designed "... as a learning laboratory for experience in analyzing power structure and power conflicts, planning strategy and tactics, and appropriate confrontation ..."1 The main purpose of these games is to "... improve organizing skill and ability to gain and use power ..."2 The game generally starts out with a description of the campus situation, including a presentation of major campus problems. All players are told they will be organizers and that they will attempt to further their own self-interests. Groups are then established and each group decides who they are, discusses the campus situation, and attempts to alter it through actions consistent with their particular roles. Through their participation in the game, players learn to analyze their own resources and those of the opposition, to select courses of action based upon available information, to utilize their resources for a specific purpose, to develop communication skills and create alternatives, and to provide realistic experience in confrontation tactics for students in higher education.

While student "action" games have focused upon developing confrontation tactics, other games have been created to assist the student in smoothly integrating himself into the higher educational system. The College Game represents an example of such an "orientation" game available to college and

1Randy Lee, "Minneapolis Student Power Games--Forms and Evaluation," Learning Games, ed. by Tom and Susan Isgar, p. 12.
2Ibid.
This game, intended for college freshmen and high school seniors, attempts to develop the players' understanding of various factors that must be taken into account by college freshmen. Each group of three players simulates one person (a college freshman), with each of the players in the group attempting to gain time for the aspect of the student's experience he represents. The three aspects represented are the academic, social, and personal parts of the college experience. During the playing of the game (intended to cover a three-week period of the freshman's college career), chance factors are introjected, causing the players to change their plans for their subject.

Those in training to become counselors are frequently able to obtain experience through simulation techniques that would otherwise be unavailable to them until they were actually practicing their profession. For example, the Audio-Simulation has been used to train counselors in interpersonal skills needed in counseling. The simulation called the Counselor's Week is designed to aid counselors-in-training to understand the realities of counseling in a school setting and helping them develop the practical aspects of the theoretical materials they have learned. And the Instruction Simulation assists

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1Ronald Short, *The College Game* (Spokane, Washington)---


3Kersch, p. 2.
counselor trainees to develop appropriate response leads, using audio-visual techniques.¹

Simulations used to train future educational administrators generally are the "in-basket" type of simulation.² Originally developed to train high school administrators, the "in-basket" technique has been found useful by White for the training of college administrators.³ The "in-basket" method is carried out by first building a description of a hypothetical school or college and its surrounding community. Each player is then oriented to the school and community. All players are individually presented with the same administrative problems and are to respond to each problem as they would in a real situation. The problems are presented in the form of letters, memos, notes, etc., which are placed in the player's "in" basket on his desk (hence the term "in-basket" simulation). He responds to them with his own written replies (letters, memos, and notes) which are collected at the end of each session and scored by judges, factor analysis, or other methods.⁴

Increasingly, college administrators have been forced to deal with problems and crisis-situations that they are not prepared, in terms of experience and background, to handle.

¹Ibid.
²Cruickshank and Broadbent, p. 16.
³Ibid., p. 11.
The nature of these problems and some conclusions about the administrators involved with them have been presented in the first chapter of this paper. Recently, simulation games have been created to aid the administrator, student personnel workers, teachers, and student in understanding the events of such a campus crisis and in better dealing with them. These games, while still few in number, already appear to have considerable acceptance as effective techniques of crisis training of college people.

The Student Power Game previously cited, while intended primarily for students, incorporates many elements used by other crisis-training games. One version of the Student Power Game consists of a role-playing situation of a confrontation between campus officials and students over the dismissal of a student from the school because of his arrest in an off-campus peace demonstration.1 This game helps provide an analysis of the roles, background, situation, and events of a campus crisis. Urbandyne, a newly-formed company dealing in simulations, has developed a similar role-playing simulation playable by all segments of the college community.2

The Edge City College game consists of several groups representing the different parts of a college (students, admin-


2 Urbandyne, Edge City College (Chicago, Ill.: 1969). This game was played by the author of this paper on April 18, 1970.
istration, board of trustees, senior and junior faculty) and simulates four years of college, including classes, registration, and student government, in a period of three to five hours. While not specifically centered upon a campus crisis situation, more sophisticated players (in terms of their own college experiences) generally tend to create such a crisis during the course of the game. In the session of Edge City College played by the author, these more sophisticated players also broke down the basic structure of the game and disrupted the game process itself by violating the simple rules deliberately. This all led to a "campus crisis" of unrealistic dimensions and may have influenced the authors of the game to use it with less-sophisticated players. During the past year Edge City College has been used with residence hall students at De Paul University in Chicago. Here the game was intended primarily as an orientation device to acquaint students with the total operations of the University. Evaluation of the game's usefulness in this respect is still going on, and Edge City College may be used with a larger group of freshmen if the game has significant value in assisting the students' orientation to and understanding of the University.¹

Simulation techniques have also been found to be of considerable value for crisis-training of student personnel workers. A regional conference of the National Association of

¹Personal communication with members of student personnel staff and administration at De Paul University, especially Mrs. Carol Quillo, Associate Dean of Students.
student Personnel Administrators (NASPA) recently abandoned its usual lecture-discussion format and used much of the meeting to play through a campus crisis simulation devised specifically for the conference.1 Part of the report on the results of playing the simulation read:

... The group saw how conflict can be used to change a university and enhance its educational potentials. In general, conference participants agreed that the new game and simulation models yielded good learning which should in turn yield better planning in their work on campus. Increasingly, small groups can disrupt the whole university. Society, universities, and their administrators are going to have to learn to deal with this kind of crisis... The general reaction seemed to be that those who went [to the conference] learned a good deal more by being involved than they would have in a traditional meeting of just sitting and listening. By taking on roles different from their own, they learned something about how one becomes locked into his own role by others' perceptions of him. ... 2

Similar results have been reported by the designers of the "Campus Confrontation Crisis Simulation," who have used their game as a crisis-training technique for college administrators.3 This game, developed by an educational consulting firm, involves role-playing of different campus factions by the administrators and is used primarily as a workshop experience


2Ibid. Note: The author attempted to obtain more details on the simulation used at this NASPA Conference, including its development and evaluation techniques used with it, but was unable to do so.

for administrators from different colleges. ¹

The author, after examining the available information on campus crisis simulations for training administrators and student personnel workers, developed a simple role-playing simulation of a campus crisis situation (see Chapter IV for a more detailed description of this game). ² The game consisted of a confrontation between radical students and the major administrators of a college and was evaluated by the players (all but one of whom were functioning in a professional capacity at some college or university) in comparison to their experience in a graduate program in higher education—student personnel work. The simulation was found to have as much value, in terms of personal and professional development, for the players as their graduate school work. It would therefore appear (from the examples cited above) that simulation games offer considerable value as techniques for crisis training of college and university administrators, student personnel workers, and others involved in the process of higher education. Chapter IV of this paper will present such a simulation, including the model, pilot studies, and the finalized game.

While simulations have been applied in many separate fields with considerable success, only a minimal amount of work has been done on the one aspect of simulation games that may

¹The author of this paper attempted to contact the game's chief designer, Dr. George J. Nolfi, Jr., about the game, but received no response.

prove to be the most rewarding. This aspect is the ability of this technique to bridge the gap between disciplines, to create a systematic approach to the study of all phases of a multidisciplinary problem. Buckminster Fuller has recognized this aspect of simulations and is undertaking development of The World Game.¹ The World Game is a large-scale simulation of the variables and trends of the earth, including its material resources, its human resources, its technology, and its sciences. Players work through the outcomes of decisions related to these factors, and, by integrating disciplines and developing unified strategies, seek to raise the standard of living for all people while ending pollution and profiteering, and conserving the earth's natural resources. The main purpose of The World Game is to show the outcomes of man's major decisions about his earth before man actually makes these decisions.²

Environmental Structuring:
A New Technique

In surveying the field of simulation games, including game theory, models, and applications of games, it soon became apparent to the author that a new technique of game design and construction was needed to help overcome several weaknesses of


²Note: An excellent resource for keeping up on developments in simulations and games is the Occasional Newsletter about Simulations and Games, edited by R. Garry Shirts and published by Project SIMILE of the Western Behavioral Sciences Institute, La Jolla, California.
the methodology. Particular weaknesses on problem areas (cited previously) include:

a) The extremely hypothetical connection between the model upon which the simulation is based and reality.

b) The incorporation into most simulations of feedback systems that are subjective, and open to influence by variables other than those upon which the game centers.

c) The role of the game administrator as often being an uncontrolled variable yet having considerable influence over the outcome of the game and the learning results (see b above).

d) The opportunity in role-playing simulations for players to stereotype their roles without receiving positive or negative reinforcement for their behaviors.

While simulations have been shown to have considerable value as teaching and training techniques, it would appear that the elimination of problems such as these would considerably strengthen the validity and power of the technique as an educational tool. After considerable thought and study, the author developed "Environmental Structuring" to help alleviate these problems. "Environmental Structuring" draws upon principles of attitude scaling and measurement and incorporates them into simulation games. It also appears that Environmental Structuring may enable the principles of behavioral reinforcement and behavioral modification to be used in the construction and playing of simulation games. As stated in an article by the author:
Environmental structuring basically means that certain selected elements of the simulation are measured in the specific environment in which the simulation will be used. Then these values are incorporated into the simulation. Unlike a fixed-parameter-type simulation where the values associated with the elements are the same no matter who the players are, an environmentally structured simulation has parameter values obtained from the specific environment in which the players actually function. Thus, the game activities of the players can have realistic consequences which can be fed back to the players to affect their strategies and decisions.

Environmental structuring attempts to minimize or eliminate the problems cited by:

a) Providing a "real" (i.e., objective and quantified) connection between the model upon which the simulation is based and reality.

b) Enabling feedback systems to be incorporated into the simulation that draw upon attitudes, values, and beliefs held by the actual counterparts of playing groups, thus utilizing more objective factors in these systems.

c) Minimizing the role of the game administrator and his influence over the game by enabling him to function as a point totaler and record-keeper rather than a quasi-participant.

d) Enabling players to receive positive and/or negative feedback as they carry out their roles, this feedback being based upon their actual counterparts and not necessarily related to role stereotypes (see b above).

Environmental structuring, as a new technique, needs considerable testing and evaluation before its potentials for simulation construction can be fully realized. In addition to other purposes already stated, a major purpose of this paper is to develop a practical simulation using environmental structuring. The specific application of the technique will be presented in the next chapter, Chapter IV, and hopefully the reader will gain a better understanding of environmental structuring through the explication that follows.
CHAPTER IV

PROCEDURE

Introduction to the Chapter

In the previous two chapters the author has presented reviews of much theoretical and practical literature concerned with organizations, administrations, crises, and simulation games. All of the materials covered represent a starting point in the development of the simulation for crisis-training of college and university administrators. This chapter traces the procedure used to build the simulation, including development of the model, pilot studies and results, and discussion of final versions. In presentation of these elements it is important to notice the integration of materials presented previously and to remember that simulation building is not an exact science with an empirical methodology, but rather is still somewhat of an art.

The Model

Initial selection of basic theoretical assumptions of the model centered upon those factors inherent in the creation of a simulation for crisis-training of administrators of higher educational institutions (see previous pages for discussion of models). Based upon extensive review of the theoretical and practical literature cited earlier, three primary factors were
selected as appropriate bases for the theoretical assumptions of the model. These factors are:

1) organizational and administrative factors,
2) inter-personal factors, and
3) crisis-conflict factors.

Each of these factors became the basis for one of the three theoretical assumptions of the model and of the functioning simulation derived from the model. Available evidence cited indicates that all three factors are present in campus crises and successful management of such crises must take into account these factors and their interactions (see Chapters I, II, and III). Thus the basic theoretical assumptions of the model are:

1) Organizational and administrative elements play a key role in determining the course and outcome of a campus crisis (real or simulated).

2) Inter-personal elements play a key role in determining the course and outcome of a campus crisis (real or simulated).

3) Crisis-conflict elements play a key role in determining the course and outcome of a campus crisis (real or simulated).

Before further theoretical assumptions of the model could be developed, it was important to determine if these three basic assumptions were able to be integrated into an operating model (simulation) of a campus crisis. Therefore, beginning in the Fall of 1969 the author undertook development of a simplified role-playing campus crisis simulation to examine the
feasibility and value of the model's basic assumptions. The resulting "Crescent University Simulation" is presented below and represents the first (Pilot I) pilot study conducted.\footnote{For a brief summary of this simulation, see Occasional Newsletter about Simulations and Games, No. 11 (February, 1970), p. 14.}

The Crescent University Simulation\footnote{From an unpublished paper by the author, "The Education of Student Personnel Administrators: A Problem and a Proposal."}

**Purposes**

The purposes of this pilot study were: a) to design a simulation of a college crisis situation, b) to carry out the simulation with members of a student personnel class at Loyola University of Chicago, and c) to evaluate the simulation.

**Method**

Because no information on the design and structure of such a simulation was available to the author, it was necessary for him to design a simulation "from scratch," or, as Raser has called it, by "messing around." Because the time permitted for carrying out the simulation, evaluating it, and discussing it was limited to one hour, the author attempted to build as much conflict and tension into the simulation as possible. The basic problem of this game revolved around a more or less typical campus crisis situation involving "militant students" and the "administration" in a confrontation, with the author acting as a referee or judge (see Appendix A for details). Four members of the class were designated as members of the militant student organization—the "Students For Action,"--and the other four members of the class were designated as administrators (president, dean of students, assistant dean of students, and president of the faculty senate) with the usual staff relationships.

Because some evaluation of the simulation was deemed desirable, it was necessary to devise some instrument to measure the outcome(s). However, as has been pointed out in this paper previously, evaluation of the results of games is still a problem area in that adequate instruments are lacking. For this reason, and because the study is a pilot study, the author decided to avoid an attempt at objective
analysis of the outcomes. Rather, he felt it would be better to draw upon the work experience of the class members, all but one of whom were presently engaged in student personnel work at various colleges and universities. The author devised a simple scale (see Appendix I) aimed at measuring on a 1-10 scale (with 10 being the maximum) the value of the simulation to them. Included were scales for 1) Interest, 2) Professional Value, 3) Personal Value, 4) Intellectual Value, 5) Interpersonal Dynamics (degree of), and 6) "Net Worth," which was to be a general evaluation of all aspects of the simulation. The author also decided that evaluation of the simulation alone would have little purpose unless some comparison could be drawn between the simulation and some other relevant factor. Therefore, at the beginning of the session in which the simulation was to be run, all the members of the class were asked to fill out the same scale with "graduate school classes at Loyola" as the referent. These results could later be compared to the class's responses to the same scale with the simulation as the referent (filled out after the simulation had been run).

In drawing up the "student" and "administrator" rules for the simulation the author was forced to rely upon his own personal and professional experiences. In order to facilitate his "keeping tabs" on the events of the simulation, the judge (the author) was designated as the central figure through which all actions by both sides must be cleared. Rules for the "S.F.A." were aimed at having them operate in a manner similar to actual militant student groups. Rules for the "administration" were more specifically aimed at limiting their communications to appropriate channels and delimiting "good administrative procedure."

Each group was also given another list which represented their separate goals for the simulation. For the "S.F.A." members there were five demands based upon the situation established for the simulation (see Appendix A). For the "Administration" there were five principles (see Appendix A), again based on what are often cited as good operating policies and procedures for effective administration. Neither group knew what the other group's rules or goals were.

Procedure

As was mentioned before, at the start of the session each member of the class (N=13) filled out the scale with "graduate school classes at Loyola" as the referent. Then the situation was read to the class members, after which they were told which side and, in the case of the administrators, which position they would be playing in the game. The two groups were then separated and the judge met with each group to explain the rules and their separate goals: the "adminis-
trators' goal was to maintain their principles, and the "S.F.A.'s' goal was to have the administration accept its demands. The two groups were then left to develop their plans and strategies and carry out the simulation in the allotted time of 45 minutes. In order to further heighten the tension, the judge created several messages for the "President" from various outside agencies and requested replies. The judge's other main functions during the simulation consisted of approving actions players wished to undertake, announcing the remaining time, passing messages back and forth between the two groups, and clearing up any procedural problems encountered by the participants. At the end of the 45 minutes the simulation was stopped and the players filled out the rating scale with the simulation as the referent.

Results

Subjective Opinion of the Author--During the course of the simulation the author subjectively noted several occurrences which he has also observed in his professional capacity as a student personnel worker. Included among these were: 1) failure of the President to communicate important information and events to other staff members, 2) sharp disagreements among the staff members over actions taken by other staff members, 3) "ganging up" on one or two key administrators by "militant students," 4) rapid escalation of events by "militant students" when administrators gave no decisive response to initial demands, 6) accession of the administration to student demands in the face of threat. Other observers may have noted different occurrences in the course of the simulation. The author was also of the opinion that personal involvement of most of the players was intense.

Results of Evaluation by Class--

<table>
<thead>
<tr>
<th>Subject #</th>
<th>Graduate School Classes</th>
<th>Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>51</td>
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<td>3</td>
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<td>41</td>
<td>48</td>
</tr>
<tr>
<td>8</td>
<td>34</td>
<td>27.5</td>
</tr>
</tbody>
</table>

Rho = -.23
p > .05 (not significant)
Discussion

The rank-difference method of correlation (Rho) was selected as the appropriate statistic for analyzing the data because of the small sample size (N = 8) and because the assumptions underlying the T-test and other such methods were probably not supported by the data. The obtained Rho of -.23 was not significant, but indicates a slight trend in the direction of a negative correlation. This trend indicates that subjects evaluating one of the referents very high tended to evaluate the other referent less valuable. As can be seen from the raw data, this seems to be the case (although not significantly so). Five subjects saw the simulation as generally having more value for them than graduate school classes at Loyola, whereas three subjects felt the simulation had less value for them than graduate school classes at Loyola.

As with many pilot studies, the purpose of this study was not to test specific hypotheses, but rather to try out important elements such as the instructions, the technique itself, and the measuring instrument. Therefore elaborate statistical analyses were not attempted with the data and formal hypotheses were not stated and tested. Subjective impressions of the author (stated above) and comments of several of the participants indicate that the simulation methodology may have considerable value for the training of student personnel workers.

Conclusion

The techniques of educational gaming and simulations have been utilized with varying degrees of success in many of the social sciences. Because of the relative newness of the technique, the lack of applicable and adequate measuring instruments, and little theoretical understanding of what is occurring in a game, few empirical studies have been undertaken to measure outcomes of simulations. However, these factors should not hinder continued research into the uses and effects of the technique as there is evidence that gaming has the potential to be a powerful and exciting instructional tool.

The increasing demand for highly-effective student personnel workers has caused considerable examination of training programs for future members of the profession. In particular, there is recognition by some that the class-job "gap" needs filling in. Simulation games would seem to provide a possible solution in that the trainee is given a chance to test his assumptions and concepts, and possible operating strategies in a realistic, yet safe, environment. Through a carefully prepared simulation the student personnel trainee
could not only do these things, but also could gain greater understanding of interpersonal processes, thus improving his own professional interpersonal relations and merging the cognitive and non-cognitive elements of his training. Surely, then, simulation games deserve the attention of student personnel educators (see Appendix I for Crescent University Simulation sample materials).

The "Crescent University Simulation," as presented above, incorporated the three basic theoretical assumptions of the model into the game through the following techniques:

1) Establishment of rules and principles, based on observed operations of organizations and administrations, for those playing the administrators—the organizational and administrative elements.

2) Establishment of a basic situation of conflict, including the historical basis of the situation; establishment of conflicting group identities and principles ("demands" and use of disruptive tactics for the students versus emphasis upon maintaining order and not accepting the use of force for the administration); establishment of pressures from the environment external to the playing environment (the "Messages for the President")—the crisis-conflict elements.

As the paper presented above indicated, in both the subjective observations by the author and the objective evaluations of the players, the "Crescent University Simulation" was able to successfully utilize the basic theoretical assumptions of the model in a playable and player-rated "valuable" simulation of a campus crisis. Before a more complex simulation could be developed, it was necessary to delineate the many corollary
assumptions (based upon the literature presented) of the model. These corollary assumptions and their contingent basic assumptions are detailed below.

Corollary Assumptions

A. Organizations and administrations

1. Administrative effectiveness is directly related to skills and experience in human relations.¹

2. Organizational principles include increasing differentiation as one moves from the highest level of an organization to lower levels.²

3. The successful administrator is able to understand and predict human behavior and analyze both organizational structure and group processes in the organization.³

4. Any organization is always supported, to a greater or lesser degree, "... by two types of force: power and authority."⁴

5. "Offices" designate the functions and duties of those occupying them and regulate the relationship between different positions in an organization.⁵

6. The values of the organization must often be compromised with the values of the environment external to the organization.⁶

¹Stoke, Viewpoints, pp. 27-28.
²Parsons, "General Theory ...", pp. 3-16. (See Chapter II, pp. 11-12, for further explanation of Parsons' approach).
³Lane, Corwin, and Monahan, Foundations, pp. 24-25.
⁴Ibid., p. 49.
⁵Ibid., p. 51.
⁶Ibid., p. 54.
7. Organizations only have some control over power assignment.¹

8. Leadership in an organization is, at least in part, a social process.²

9. Individual communication, both upward and downward, is a central process in any organization.³

10. "Administrative style" can play a major role in the effectiveness of administration, especially in colleges and universities.⁴

B. Interpersonal Elements

1. "The study of interpersonal and group relations results in changes in behavior of many administrators and persons preparing for administrative positions . . ."⁵

2. "Each administrator needs an understanding not only of the role expectations held for his position but also of the ways that others perceive his behavior."⁶

3. Formal and informal groups, both internal and external to an organization, can have considerable impact upon the administrative process.⁷

4. The existence of such groups (see #3 above) forces the administrator to assume a political role and necessitates an understanding of "... power structures and political

¹Ibid., pp. 205-206. ²Ibid., pp. 305-313.
³Brown, The Liberal University, pp. 42-86.
⁴Demerath, Stephens & Taylor, Power.
⁵Savage, Interpersonal and Group Relations, pp. 11-14.
⁶Ibid., p. 129. ⁷Ibid., pp. 154-296.
maneuvers . . ."1

5. Small or "primary" groups play a major role in determining the beliefs and attitudes of their members.2

6. Small or "primary" groups are identified by: a) face-to-face contact, b) small size (maximum of 20 members), c) common goals or purpose, d) certain common behavioral characteristics, e) existence as either a formal or informal group.3

7. Operating "primary" groups can be established under controlled conditions.4

C. Crisis-Conflict Elements

1. Many conflict situations are bargaining situations because how well one side obtains its goals partially depends upon what the other side does.5

2. A major factor in conflicts is the strategy developed by each side and the interaction of strategies.6

3. Bargaining is a process of mutual accommodation, rather than pure agreement.7

4. Inter-organizational conflicts express and develop from inter-group conflicts.8

5. An organization's behavior can often be determined by the

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1Ibid., p. 203.
2Verba, Small Groups, pp. 3-10.
3Ibid., pp. 11-13. 4Ibid., pp. 61-131.
6Ibid., pp. 3-16. 7Ibid., p. 102. 8Ibid., p. 106.
fact that it perceives itself as being in conflict with other organizations.  

6. Bargaining, as a major method for dealing with crises and conflicts, must be systematized by an organization in order to be used effectively. 

7. Conflicts must be identified and effectively dealt with in their early stages of development. 

8. Conflicts are generally group-centered (as opposed to individual-centered). 

9. "The administration of schools may be conceptualized as a matter of coping with organized groups in various states of tension . . ." 

10. Conflict resolution can only occur if effective exchange of views can occur between conflicting parties. 

11. It is important for administrators to be able to examine objectively both sides of an issue and communicate this analysis to the opposing sides. 

12. Bargaining involves power relationships. 

Delineation of the corollary assumptions above enabled

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1Ibid., p. 145.  
2Ibid., p. 321. 
3Ibid., p. 325.  
4Lane, Corwin, and Monahan, Foundations, p. 43. 
5Ibid., p. 232. 
6Savage, Interpersonal and Group Relations, p. 195. 
7Ibid., p. 218. 
8Matlin, The Educational Enclave.
further steps to be taken towards development of a complex but playable campus crisis simulation.

Construction of the Environmental Structuring Device

Environmental Structuring, as developed by the author, is a new simulation technique that will hopefully enable the creation of operating models (simulations) that accurately reflect the dynamics of the reality upon which they are based.\(^1\) Players of such simulations will receive accurate feedback of how their actual counterpart groups would or would not act in such a situation and will thus achieve a better understanding of and experience in the roles played by the various groups in such a crisis. Implicit in the technique of Environmental Structuring are several assumptions which should be outlined briefly:

1. **An "Open System" model.** Most simulations incorporate models which are internally consistent and valid, but which are not dependent upon reality in any way and therefore can be said to be a "closed system" (see Fig. 1 below).

```
\[\text{Simulation} \quad \text{Reality}\]
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![Figure 1: "Closed System" simulation process vs reality process.](image)

\(^1\)See pp. 103-106 of this paper.
An Environmentally Structured simulation, on the other hand, represents an "open system," as changes in reality can be reflected directly in changes in the simulation (see Fig. 2 below).

![Diagram](chart.png)

Fig. 2. "Open System" (Environmentally-Structured) simulation process and reality.

2. Environmental Measuring (Scaling). Basic to the operation of the open system model is the assumption that certain critical dimensions of the actual environment can be objectively measured and the results of these measurements can be incorporated into the simulation. These concepts represent the basis of the environmental structuring device (an attitude-opinion type scale), the means by which the interplay of reality and the simulation is realized.

3. Behavioral Reinforcement. Objective measurement of selected critical dimensions enables quantified values to be assigned to certain aspects of these dimensions. These values can thus be incorporated into the game and be utilized as behavioral reinforcement for players' actions. Thus stereotypic role-playing is prevented because actual counterparts of playing groups have been scaled as to their attitudes on relevant variables and
these scores are "fed back" to players as part of the game process. Playing groups are positively reinforced for behavior in a manner "approved" by their actual counterparts.

4. **Group Orientation.** Environmental Structuring, including both the measuring and application-of-results processes, incorporates within it the concept of definable groups. Classification of responses into groups, based upon respondent selection of a single group description from several such descriptions, represents the second major part of the Environmental Structuring Device (the first part being the Environmental Measurement). This group orientation also becomes a central focus of the game process (see basic assumptions related to this under previous section).

5. **"Action Focus".** The particular Environmental Structuring Device developed for the campus crisis simulation takes an "Action Focus." That is, specific issues, motivations, reasoning, and belief structures of players are not a central focus of the game design (although these factors do play a major role in the game process and game results). The Environmental Structuring Device and the game itself focus upon "actions" (i.e., observable incidents of behavior) which may be carried out by actual groups or playing counterparts.

All of the above factors represent the theoretical foundation needed for the development of a workable environmen-
tally-structured simulation. Beginning in 1970, the author began work on such a simulation for crisis-training of college and university administrators. The resulting "Morningside University Simulation," as described in detail below, represented the second pilot study and the transitional step in the development of the game.1

The "Action Focus" factor dictated development of a simulation based upon a well-documented campus crisis situation. The Cox Commission Report detailing the events of the campus crisis at Columbia University in 1968 was selected as a relatively objective description of the events of such a crisis, including groups involved and "actions" undertaken by these groups.2 After extensive examination of the Report and analysis of the events of the crisis in terms of the "group" and "action" assumptions, and literature related to organizations, administrations, role-playing, simulations, and interpersonal dynamics, three dimensions were developed for surveying respondents' attitudes towards the events of the Columbia situation. In the "Morningside University" simulation these dimensions were centered upon the question, "If X action were to occur, what would be your response to it (in terms of the selected dimensions)?" The three dimensions used in this simulation were: a) "Power" or P, which was defined as the "ability of this action to bring

1See "Morningside University," pp. 429-433, based upon an unpublished paper of the same title by the author.

about favorable or desirable results for the group carrying out
the action (regardless of how you yourself feel about the par-
ticular action)," b) "Support" or $S$, which was defined "in terms
of your participation in or support of the listed action," and
c) "Tension" or $T$, which refers to "how you feel this action, if
carried out, would affect the general tension level of the
campus in the light of the present situation."¹

A five-position Likert-type Scale was developed for
each of these three dimensions with the basic scheme being a "1"
indicating a highly positive attitude towards the listed action,
a "3" representing a neutral attitude (no opinion, not sure, no
effect), and a "5" representing a highly negative attitude
towards the listed action.² Thus for $P$ ("Power"), the possible
responses for each listed action were as follows:

1 = would greatly increase power of group carrying out this
action.

¹As was mentioned, these three dimensions were extract-
ed from the literature cited in Chapters II and III. Additional
material related to these dimensions may be found in L.S. Shap-
ley and Martin Shubik, "A method for evaluating and distribution
of power in a committee system," Game Theory and Related Ap-
proaches to Social Behavior, ed. by Martin Shubik (New York:
John Wiley & Sons, 1964), pp. 141-150; also see John Harsanyi,
"Measurement of social power," in the same book, pp. 183-206;
also see NASPA's "Student ... Revisited: A Revision of the
June 1968 Statement on Student Power" (prepared by the Ad Hoc
Committee on Student Power of the National Association of Stu-
dent Personnel Administrators). This statement, especially the
first page, outlines a functional concept of power very similar
to that developed by the author. All dimensions developed, de-
spite extensive support by concepts derived from cited literature,
are subjective generalizations of the author.

²A. N. Oppenheim, Questionnaire Design and Attitude Meas-
2 = would **moderately increase** power of group carrying out this action.
3 = no effect.
4 = would **moderately decrease** power of group carrying out this action.
5 = would **greatly decrease** power of group carrying out this action.

For **S** ("Support") the possible responses for each listed action were as follows:
1 = would **definitely participate in or support** this action.
2 = **might participate in or support** this action.
3 = not sure.
4 = **might oppose** this action or attempt to prevent its undertaking.
5 = would **actively oppose** this action and prevent its undertaking.

For **T** ("Tension") the possible responses for each listed action were as follows:
1 = would **greatly increase** campus tension.
2 = would **moderately increase** campus tension.
3 = no effect on campus tension.
4 = **would moderately decrease** campus tension.
5 = would **greatly decrease** campus tension.

The Morningside University Questionnaire represented the first pilot version of an Environmental Structuring Device. In the final form of the Questionnaire there were the following parts: 1) a very brief paragraph of general instructions for
completing the Questionnaire, 2) a description of "Morningside University" (a slightly-fictionalized version of the description of Columbia presented in the Cox Commission Report) which included the size, location, general history and description, recent events, and student protests and demonstrations leading up to the present situation. This description was designed to "set the scene" for the respondents to the Questionnaire (and for the players, as shall be seen), 3) the instructions for completing Part I of the Questionnaire. These instructions included an explanation of each of the three dimensions and the rating scheme used for each dimension, and a sample action with responses given. Also included at the top of these instructions was a place for the respondent to indicate his "position" on the campus (i.e., faculty, student, or administration), this item to be used for classifying purposes later on. 4) Part I of the Questionnaire, which consisted of a list of eighty-five "actions" which occurred at Columbia University from April 23 to April 30, 1968 (as presented in the Cox Commission Report). Each action was followed by a response matrix for the three dimensions cited above. 5) Part II of the Questionnaire, which was designed to classify the respondents in terms of their "political affiliation" and consisted of brief descriptions of four groups which might be found on a campus. Respondents were instructed to "... check (x) the one group or organization that you would most want to affiliate with or belong to. If faculty or administrator, please check the group you would most want to advise or be associated with."
The group descriptions, designated only as groups A, B, C, and D, were based specifically upon the descriptions of some of the groups participating in the Columbia disturbances and some generalizations drawn by the author about these groups. Group A represented a description of the S.D.S. (radical) students, Group B represented a description of a Black student organization, Group C represented a description of a "conservative" group, and Group D represented a description of a "liberal" or "moderate" group. As indicated above, respondents were instructed to check which of these four groups (which were designated only as Groups A, B, C, and D) they would most want to affiliate with or belong to. This section of the questionnaire enabled the simulation to be structured in such a way that the different groups involved in playing the simulation would be playing in terms of the responses of their actual counterparts who filled out the questionnaire (possible groups included the following: liberal faculty, conservative faculty, radical faculty, radical faculty, "Black" faculty, liberal students, conservative students, radical students, "Black" students, and administration). Although only a pilot version, the Morningside University Questionnaire was designed to be used by randomly-selected

1Cox Commission, Crisis, pp. 13-18, 27-29, 54-60.

2Note: In the case of "administration," it was concluded that political affiliation by group classification would be unwise, as administrative structures and procedures generally preclude formation of separate "political" groups at upper administrative levels. Available evidence, including descriptions of campus crises and organizational-administrative literature cited, tend to support this assumption.
groups of students, faculty, and administration members at a particular college or university. When the Questionnaires are returned, each action's score along each of the selected dimensions is recorded for each respondent. The Questionnaire's results could be grouped in several ways. For example, each action can be given a mean "Tension" score which would be the average of the tension ratings for that particular action as scored by all respondents. Thus in the simulation itself a point value can be assigned to a given action, this value representing the increase in the campus tension level that members of an actual campus community perceive as resulting from the undertaking of this action. Differentiations can also be assigned point values along the "Support" dimension, based, for example, upon how student, faculty, or administration respondents rated each of these different actions. If the samples of each of these groups are representative of the probable responses of the actual groups, then some generalizations could be made about actual campus support for each action. Basically, however, the Morningside University Questionnaire was intended, through assessment of campus attitudes, to assign point values to each of the actions in terms of the three dimensions.

A second purpose of the Questionnaire was to delineate goals of the different campus "political" groups and utilize these goals for these groups' counterparts in the simulation. Part II of the Questionnaire can be used to classify the respondents according to their reported group affiliation and item analysis techniques could be applied to determine each group's
goals in terms of the three dimensions. For example, does a majority of the students who indicate they want to affiliate with Group A (radical students) generally support actions which would a) raise the tension level, and b) increase the "power" (as defined) of radical student groups? If this is the case, then those playing the radical students in the simulation can be assigned the goals of a) increasing campus tension, and b) increasing their group's power. "Support" goals could be established for each group by asking the question "are the actions supported most strongly by this particular group (i.e., "conservative students," "liberal faculty," etc.) generally supported by a given segment of the campus (i.e., all students, all faculty, etc.) or by the campus community as a whole"? An example of a Support goal would be for a given group to "increase campus support," or to "increase faculty support."

For this pilot study (mainly intended to develop a playable environmentally-structured simulation and not intended to assess the validity and reliability of the Questionnaire) the Questionnaire was filled out by approximately 26 members of an introductory graduate student personnel course at Loyola University of Chicago. Class members (all graduate students and many of whom were also full-time student personnel workers) were asked to fill out the Questionnaire as if they each had a particular group membership and political affiliation. This was done in order to aid in corroboration of the assumptions made in Part II of the Questionnaire (see above). Thus, each member of the class was assigned a particular role, drawn from the follow-
ing list: Administration, liberal faculty, conservative faculty, radical student, and conservative student (other groups were not included). In almost every case the class members checked the group affiliation on Part II which would be appropriate to their assigned role. The exception occurred when the four people assigned the role of "conservative faculty" split--two of the four checked group "D" rather than the expected group "C." This may have been the result of their own inexperience with college faculties or may be the result of incorrect formulation of the description of a conservative campus group.

Two other problems were noticed in checking over the completed Questionnaires and in observing the class completing them. First, many of the respondents frequently had to refer back to the instructions for Part I. This might indicate that the instructions were too complex and thus in need of revision, or that the rating scheme itself should be simplified or printed at the top of each page of the first section of the Questionnaire. A second problem developed in scoring the responses. The "1-2-3-4-5" format proved awkward in that items given the most positive value by respondents had the lowest score (a "1"). Therefore all scores were converted according to the following scheme: a "1" response received +2 points, "2" received +1 point, "3" received "0" (none) points, "4" received -1 point, and "5" received -2 points. Conclusions were that a similar scheme should be followed for future versions and that the Questionnaire be set up for a separate, machine-scorable answer sheet (making the Questionnaires reusable).
The Morningside University Simulation: Development, Playing, and Results

The "Morningside University Simulation" was based upon a particular campus crisis situation for several reasons, including the following:

1) Basing the simulation upon an actual campus conflict situation enabled different and realistically-functioning groups to be set up modeled after the key groups involved in the real conflict (see previous section for discussion and elaboration of this point).

2) Basing the simulation upon a real campus conflict also enabled events caused or undertaken by groups not represented in the simulation (such as community or police actions) to be injected into the game at points when they occurred in the actual crisis. Such events were injected by posting them on a "campus bulletin board" in the form of "campus news releases." These releases were keyed to players' actions so that when a particular group undertook a given action that in the actual situation produced certain consequences or was followed by certain actions, these consequences or actions were posted on the "campus bulletin board." Most of these actions were incorporated into the Questionnaire so that they had score values along the three dimensions.

3) Basing the simulation upon a real campus conflict enabled a realistic detailing of the history and background of the university, and of the events leading up to the
situation where the game starts. Thus players can gain some "feel" for the university environment they are playing within.

4) In campus crisis situations it is not only the issues, goals, and particular groups that play key roles; it is also the actions undertaken by these groups to achieve their goals (see assumption re: "Action Focus"). These actions are the basis of environmental structuring and are a key part of the playing of the simulation.

In order to better explain the parts of the "Morningside University Simulation" it seems appropriate to present the material from the Player's Handbook. The first part of the Player's Handbook is the description of "Morningside University" also used in the Questionnaire. The second part of the Handbook is a brief introduction to the simulation and stresses the need for players to play their roles as if they were the actual person. The third part consists of general instructions for all players and explains each of the key components of the simulation. These components include: 1) Goals--a brief description of the three dimensions of the group's goals is presented; 2) Actions--the three dimensions are defined exactly as they were in the instructions for filling out Part I of the Questionnaire. Then the general objective for each group is stated, this objective being: "... to attain its goals by carrying out actions which the group feels have values (along the ... three dimensions) that are appropriate to that group's unique goals." Then some general guidelines are presented for the use of actions;
3) Issues--the creation of issues was left up to the players, although it was suggested that players use the background material on "Morningside University" as presented in the Handbook;  
4) General procedures--a list of operating procedures applicable to all groups was presented. Included was the instruction that, after a group had selected a particular action to undertake, the group would give the number of that action to the judge (game administrator) so that he could record the score values (which were unknown to the players) on scoring sheets.

The remainder of the Player's Handbook consisted of the individual group descriptions (almost identical to the counterpart descriptions used in the Questionnaire) and the operating procedures and principles for each of the groups. Operating procedures and principles were based upon: a) the Cox Commission Report, b) the procedures and principles used in Pilot I (the "Crescent University Simulation"), and c) material presented in Chapter II.

In order to facilitate scoring, each action was listed on a separate 4 x 6 card. On this card was listed the number of the action, the description of the action (identical to the description used on the Questionnaire), its point values along each of the three dimensions, and the "campus news release" to be posted, if appropriate. Players turned in the number of the action they were going to undertake, and the judge looked up its score values on the card and then recorded these values on the scoring sheet for that particular group. Each group was assigned a base level of points along each of the three dimensions, with
the tension level being the same for all three groups. In this study Power and Support base points were apportioned among the playing groups by the author. Goals for the different groups were also established by the author, although they actually can be drawn up from the Questionnaire, as has been explained.

Using the results of the Questionnaire as administered, the "Morningside University Simulation" was played and evaluated by two graduate student personnel classes in the spring and fall of 1970 at Loyola University of Chicago. In the post-game discussions players generally evaluated the simulation as a valuable training experience (subjective evaluations). Specific criticisms and problems include the following:

1) Sub-totaling and posting of the scores for the different groups during the course of the game (in order to give periodic feedback to the players) proved difficult for the judge, as he often did not have time to total results.

2) Some playing groups complained that they felt the list of actions available to them was too limited. The author generally feels that the constraints, values, and goals of the actual groups at Columbia often limited their actions and these limitations were reflected in the game. Revision of the Questionnaire and some revision of the game technique, however, might help broaden the alternatives available to playing groups and enable the simulation to be played in a manner more appropriate to their own campus rather than to the situation at Columbia.

3) Initial playings and player responses strongly indicated
that more playing time was needed than the one and one-half hour sessions used. Players needed time to become involved in the simulation and to learn the rules and procedures. Also, considerable time should be devoted to discussion of the game and its implications for the players in their real-life situations.

The feasibility, however, of a playable environmentally-structured simulation was demonstrated and further development could proceed along these lines: 1) simplification and improvement of the Environmental Structuring Device, 2) improvement of feedback systems in the game, and 3) development of a more general list of actions from players to select from.

ESSIMU - I © 1971

Pilots I and II, the three playings of these simulations, and the players' and developer's evaluations enabled further steps to be taken towards development of an environmentally-structured simulation for crisis-training of college and university administrators and student personnel workers. Simulation-building is still very much an art (see Chapter III), due to the "intuitive" nature of many assumptions underlying a game and the paucity of evaluation techniques that can be classed as objective and empirical. As in sensitivity training, learning in role-playing simulations may occur primarily in the realms of self-understanding and interpersonal relations. Cognitive learning, which is easier to measure objectively, may be of secondary importance. The assumptions underlying the simulation under
development here are more closely tied to self- and interpersonal learning than to cognitive effects. Originally it was intended that development of a finished version would be followed by extensive objective evaluation of the game. However, the scope of this task of evaluation necessitates reserving development and application of objective evaluation techniques for a later time.

Keeping the above in mind, the next step in creating a finished version was the critical review carried out above and development along the indicated lines. The first area of concern was improvement and simplification of the Environmental Structuring Device. Of the three dimensions for rating each action of the Morningside University Simulation, only the Support or S dimension seemed to have the potential for providing a circumscribed area that could be effectively measured with some degree of validity and reliability. The Tension or T and Power or P dimensions appeared to have little potential as objectively-quantifiable entities in that they represented extensions beyond simple opinions of respondents and required respondents to make generalizations about others besides themselves. The use of Support as a scaling dimension does not seem at variance with established principles of attitude scaling and questionnaire design. Additionally, the Environmental Structuring Device's chief function, like that of attitude scales, is "... to divide people roughly into a number of broad

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1 Oppenheim, Questionnaire Design, pp. 121-140.
groups with regard to a particular attitude."¹ Thus the Support dimension and the Likert-type 1-5 rating scheme were incorporated in the finalized questionnaire. The 1-5 rating scheme was modified to avoid the point reversal problem encountered earlier, thus creating steps of: active opposition (a rating of 1), possible opposition (2), not sure (3), possible participation in or support of (4), and definite participation in or support of (5) a particular action. Instructions could thus be simplified to "For each listed action you are to indicate your degree of support of or opposition to this action, should it occur on your campus . . ." (the explanation of the rating scheme followed immediately).

Use of a single dimension for rating actions enabled measures to be taken to improve the feedback systems in the game. In the Morningside University Simulation a number of feedback systems could be created, depending upon how questionnaire results were combined. The many possibilities inherent in such an open-ended technique would limit effectively any attempts to evaluate the simulation and would also limit the usefulness of the game by permitting individuals scoring the questionnaire to develop possibly-invalid score-pooling techniques. It therefore was deemed appropriate to standardize the feedback systems and procedures for applying scores to the simulation with the goals of: a) simplifying these systems and procedures as much as possible to prevent errors in interpretation and application, and b) providing immediate feedback to players. In order to

¹Ibid., p. 121.
accomplish these goals the ESSIMU-I (Environmentally-Structured Simulated University-I) Questionnaire was developed based upon the techniques used in the earlier Morningside University Questionnaire. The general format was much the same, with a set of general instructions, a description of the campus situation, instructions for Part I (rating actions along the S dimension), the list of actions with rating numbers for each, and Part II of the questionnaire (the group self-selection part). A major change, incorporated specifically to simplify scoring and feedback procedures, was the division of the list of actions into three sub-lists: a list of actions students could carry out, a list of actions administrators could carry out, and a list faculty members could carry out. Respondents to the Questionnaire are instructed to rate the list of actions that could be carried out by their group only (i.e., students rate the list of possible student actions, faculty members rate the list of possible faculty actions, and administration-staff members rate the list of possible administration actions).

By keeping the rating of the actions "group-specific," and utilizing the group self-selection technique of Part II of the Questionnaire, the ESSIMU-I Environmental Structuring Device technique for scoring and feedback can be carried out according to the following instructions:

1) After the questionnaires have been administered, separate all questionnaires into three categories, depending upon status (student, faculty, or administration) of each respondent, as checked above Instructions for Part I.
2) For student and faculty categories, establish four sub-groups, based upon Part II responses (group self-selection). Thus the maximum possible number of all groups is nine (administration, faculty-A*, faculty-B, faculty-C, faculty-D, student-A, student-B, student-C, student-D).

3) For each of the nine groups, average ratings for each action, as indicated by respondents of that group. That is, for example, all ratings of action #1 for the faculty-A group are averaged, etc.

4) Establish three sets of 3 x 5 cards--student actions, faculty actions, administration actions. Cards are numbered in the same order as actions are listed in the questionnaire.

5) On each action card record the mean Support scores for each of the appropriate groups. That is, for a card listing a student action, mean S scores for student-A, student-B, student-C, and student-D respondents would be recorded.

6) In the game itself, each playing group, by means of its own decision-making procedures and principles (as outlined in the Players' Handbook) selects an action from its master list. It then records the number of action and the action's description on the group's scoring sheet and the number of the action is reported to the game.

*Letter designation from four groups' letters on Part II of the Questionnaire.
administrator before the action is undertaken by the group. When the action is reported, the game administrator looks up the $S$ value of that action as rated by the playing group's actual counterpart on the questionnaire, and reports the score to the playing group. Both the playing group and the game administrator record this score on their score sheets, the game administrator keeping a separate score sheet for each group. If he so wishes, the game administrator may post sub-total scores for each group during the course of the game.

The third area of improvement incorporated into the ESSIMU-I simulation is in the area of actions available to playing groups. The basic principle of three separate lists enabled a more comprehensive set of actions to be made available to each playing group (e.g., students, faculty, and administrators). In the Morningside University Simulation a specific criticism made by the players was that the list of actions available was too specific and restricted. This criticism is valid in that the Morningside University Simulation was tied directly to the Columbia University crisis of 1968. A secondary consequence of tying the simulation to one specific crisis was that possible outcomes of the game were also restricted too much.

In order to correct these criticisms, the developer of ESSIMU-I undertook an extensive survey of media descriptions of campus crises occurring in the United States over the past few years. In addition to sheer numbers of crises, the author
attempted to examine a variety of crises at many types of institutions. Also, efforts were made to locate examples of "crises" that were peacefully resolved with minimal conflict, so that courses of action available to playing groups would be as broad as possible. A partial list of crises surveyed includes incidents at the following schools:

- Yale University
- Brandeis University
- Harvard University
- Columbia University
- S.U.N.Y. - Buffalo
- C.C.N.Y.
- Dartmouth
- University of Chicago
- Southern University
- Stanford University
- University of Michigan
- M.I.T.
- San Fernando Valley State College
- Kent State University
- San Jose State College
- San Francisco State College
- University of Pennsylvania

In each case, the author sought to find several sources describing a particular crisis and the details of events related to the crisis. Master lists of actions were prepared for each individual crisis and were separated into lists of student
actions, faculty actions, and administration actions. Lists for all crises examined were collated for each of these three groups and a separate list of "reciprocal actions" (actions carried out by off-campus or non-campus agents or by persons or groups unknown) was prepared and keyed to actions on the master lists that they were related to. For example, if the mayor of a town alerted police after a large demonstration by "radical students" on a campus, the mayor's action was coded to the action of a demonstration by radical students. These "reciprocal actions" were later recorded on 3 x 5 cards and were number coded. For each action where a "reciprocal action" occurred in reality, the number of the "reciprocal action" was recorded on the master action's 3 x 5 card so that the "reciprocal action" could be posted as a Campus News Release when a group undertook the master action.

Master lists of actions were refined by elimination of duplicate actions, randomization of order, and rewording of actions to eliminate specific references to the institution where the incident occurred. Completed lists for students (80 actions), faculty (61 actions), and administrators (74 actions) were incorporated into the Environmental Structuring Device and into the Players' Handbooks. The ESSIMU-I Questionnaire and a sample of one group's Players' Handbook are included in this paper as Appendix II '(Questionnaire) and Appendix III (Players' Handbook).

In its final format the ESSIMU-I Questionnaire consists of the following:
1) General Instructions for the Questionnaire (including a section specifying the anonymous nature of the Questionnaire).

2) A brief description of the campus situation. This description is very general and is designed to place emphasis upon rising campus tensions and rumors—no specific contributing factors are cited.

3) Instructions for Part I of the Questionnaire (including a section to check one's "status"—student, faculty, or administration). In this section the concept of Support is presented, the rating scheme is explained, and two item examples are given.

4) Lists of actions for rating, subdivided into a list for students to complete, a list for faculty members to complete, and a list for administrators to complete.

5) Part II of the Questionnaire—the group self-selection section explained earlier under the Morningside University Simulation section.

The ESSIMU-I Players' Handbook consists of the following sections:

1) An Introduction to the Simulation. In this introduction the crisis nature of the game is emphasized, along with the basic role-playing function of each player. This section is based upon experience with earlier versions of the simulation and literature cited dealing with role-playing and role-playing instructions.

2) A brief description of the campus situation (the same
description used on the Questionnaire).

3) General Instructions. These instructions draw heavily upon experience and techniques used in the Morningside University Simulation and, as with sections 1 and 2 above, are identical in all Players' Handbooks. The General Instructions detail the four key components of the simulation, these being: 1) Actions, 2) Goal, 3) Issues, and 4) General Procedures (for playing the game). While these components are basically the same as those utilized in the Morningside University Simulation, necessary changes have been made, as explained above. Emphasis is placed upon players filling in the details or reasoning behind the actions and developing issues "... relevant to your own campus."

4) Individual Group Descriptions and Operating Procedures and Principles. Each player's group is identified by its name and the role-playing instructions are repeated. The group description is presented (identical to the Group Description used on the Questionnaire, except for the addition of the group name), and the Operating Procedures and Principles for the group are given (these are drawn from the Morningside University Game, which in turn drew the descriptions from the Cox Commission Report).

5) Actions available for the group. It is important to note that playing groups have available to them a complete list of all actions available to all groups in their general classification. That is, each of the four student
groups has the entire list of student group actions available to choose from, each of the faculty groups can choose from the entire list of faculty actions, etc.

All Players' Handbooks, Questionnaires, and other game materials (Action Card File, Campus News Releases, Administrators' Titles signs, Campus Bulletin Board sign, Score Sheets, etc.) have been duplicated or printed in such a way that a prototype ESSIMU-I Kit consisting of these materials was developed. Pending extensive testing and evaluation of all ESSIMU-I materials by others, such a kit makes it possible to distribute ESSIMU-I on a wide scale to institutions of higher education.

The initial playing and evaluation of ESSIMU-I took place at a session of the 1971 American College Personnel Association National Conference held in April in Atlantic City, New Jersey. For the first playing all action point values were simulated as actual Questionnaire results were not available. Although most of the participating players were student personnel educators (including a Dean of Students, several counselors, etc.), a few of the players were college students. Results of observations of the playing of ESSIMU-I, and players' post-game evaluations, include the following:

1) The use of identity symbols (titles for administrators, red armbands for "radical students") appeared to help these groups establish their identity more rapidly than other groups. It is recommended that this practice be continued in future playings of ESSIMU-I.

2) Approximately one-half to one hour is needed for players
to comprehend the nature of the game and its procedures and complexities, and to appear "comfortable" in their assigned roles. In planning a block of time for playing ESSIMU-I, it is strongly recommended that this factor of adjustment to the game situation be taken into account.

3) ESSIMU-I is capable of being played with a relatively small number of players. In the initial playing a total of fourteen persons were involved. With a total number of players this small, it is recommended that the number of playing groups be limited to key groups such as the administration, radical students, and a faculty group (either liberal or conservative). General group principles also suggest a minimum of three persons per playing group.

4) Considerable time should be set aside for post-game discussion of the simulation and players' reactions to it. This discussion period should be structured around questions related to the basic assumptions of the simulation, as presented earlier and to the material presented in Chapter II. It might even be appropriate to use part or all of Chapter II as a pre-game "reading assignment" (the chapter was partially intended for this purpose). Additionally, it is suggested that discussion procedures follow the following basic format widely used for discussions involving large number of people who have been subdivided into groups: a) discussion within
each subgroup of standardized topics or questions, b) presentation to total group of each subgroup's conclusions or summary of key points discussed (this is usually done by one spokesman for each subgroup), c) general (total) group discussion of results, key points, and issues raised in subgroups.

5) The only major technical problem in the playing of ESSIMU-I occurred with the Campus News Releases. The list of Campus News Releases developed in conjunction with the lists of actions proved to be too extensive and sometimes resulted in the posting of News Releases that contradicted each other or were "out of touch" with the actual course of the game. It might be useful to separate actions used for News Releases into two categories based upon who perpetrated the action. These categories could be called "External" (actions taken by the community, the board of trustees, the local police, etc.) and "Unknown" (actions taken by individuals or very small groups acting independently and undetected, including bombings, arson, damage to campus buildings and offices, etc.). "External" actions, which often appear to occur as a reaction to campus events, can still be keyed in with actions taken by on-campus groups. "Unknown" actions, because they often are not necessarily related to actions undertaken by recognized groups, could randomly be keyed to playing groups' action numbers by using dice, a table of random numbers, etc.
6) In the Morningside University and Crescent University Simulations playing groups had separate rooms to meet in. In the first playing of ESSIMU-I the playing took place in one large meeting room. In the latter case communication between playing groups and the game administrator was considerably facilitated by the single meeting place and the availability of a P.A. system. However, experience seems to indicate either type of space arrangement is useful.

7) During the playing of ESSIMU-I the use of two game administrators enabled groups' subtotals of points to be posted on a blackboard. Most groups apparently did not find time to do their own subtotaling and having this information posted appeared to help groups keep track of their own and other groups' progress.

8) The basis for the point structure (Environmental Structuring) was not explained until after the game was over and players had raised questions about stereotyped responses. Game administrators could explain the technique of deriving points for actions before the game starts and emphasize the need for playing groups to act as if they were their real-life counterparts on their own campus, rather than act in terms of stereotypes derived from interpretations of groups' titles.

9) It is recommended that the game administrator go through the Players' Handbook with all players before the start of the game. Important points to emphasize include:
a) the players are to function in the game as they believe actual persons affiliated with these groups would behave in reality; b) detailed review of the four key components of the game (Actions, Goals, Issues, and General Procedures), including special emphasis upon the need for each playing group to select a course of action, before consulting the list of actions to find the action they have selected; c) the players should check the Campus News bulletin board (the location should be announced) throughout the game.

ESSIMU-I, then, is a playable simulation for the crisis-training of college and university administrators. This simulation is now ready for empirical testing of its theoretical assumptions and extensive evaluation of the validity and reliability of the ESSIMU-I Questionnaire. Results of such studies will lead to substantive changes in the basic format of ESSIMU-I and continuation of the development cycle.
CHAPTER V

SUMMARY AND CONCLUSIONS

Purpose

The increasing number of college and university campus crises over the past decade has created a need for the acquisition of crisis-management skills and increased insight into the elements of crises by administrators of institutions of higher education. The current brief period of campus quiet may well represent the "... eye of the storm..." and more severe disturbances may lie ahead. Simulation technology offers the possibility of developing these skills and understanding in a controlled experiential setting that remains safe from real consequences. The central purpose of this dissertation has been the construction, playing, and evaluation of a simulation for crisis-training of college and university administrators.

Procedure

Before work could begin on the construction of a simulation for the intended purpose, it was necessary to undertake an extensive investigation of the literature in several related areas, including organizational theory, administrative theory and principles, crisis elements of organizations and adminis-

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148
trations, and all aspects of simulations and games. This investigation was specifically aimed at:

1) Grounding the simulation firmly in theoretical principles of organizations, administration, crises, and simulation-game technology.

2) Stating explicitly the underlying theoretical assumptions of the simulation.

3) Creating a simulation consonant in its design and construction with principles of game theory and group dynamics, yet tied closely to the realities of campus crises.

4) Determining the "state of the art" in simulation-game techniques and, if possible, developing a new simulation methodology to lessen inherent weaknesses in current games and thus enhance the value of such games to players.

As this investigation was being undertaken, it was necessary to test basic assumptions by developing a simple preliminary role-playing simulation. The Crescent University Simulation (Pilot I) attempted to replicate a campus confrontation between militant students and university administrators and included elements such as: establishment of a crisis situation, specification of groups' beliefs (role descriptions) and goals, establishment of basic operating rules for playing groups, and incorporation into the game of segments of the environment external to the playing situation. Eight administrators, all of whom were enrolled in a graduate course at Loyola University of Chicago, were asked to compare the game experience to their graduate coursework experience in terms of factors related to
professional preparation and personal insight into crisis situations. Statistical analysis of a simple attitude scale constructed to assess this comparison revealed that players rated the simulation experience at least as valuable as their graduate coursework in increasing their personal and professional "expertise."

As investigation of the literature in the areas cited above proceeded, it became possible to establish several theoretical assumptions upon which a campus crisis simulation could be based. These assumptions represented a synthesis of principles of organizations and administrations—with emphasis upon organizational structure and interpersonal dynamics, crisis theory, and simulation-game theory. Establishment of these theoretical assumptions and critical evaluation of many of the available simulations and simulation literature led to the conclusion that it was necessary to develop a new simulation methodology in order to avoid the weaknesses of typical role-playing simulations. Specific weaknesses included: a) introduction of uncontrolled variables by the game administrator, b) tendency to stereotypic behavior by players fulfilling role descriptions, c) weak feedback systems often isolated from reality, d) inability to structure the simulated environment in terms of a specific actual environment.

Further development work led to the creation of the technique of Environmental Structuring, which combines attitude scaling principles with simulation methods to eliminate or
minimize the weaknesses of typical games cited above. Environmental Structuring basically means that certain elements of the environment are selected for incorporation into the simulation, these elements are measured, and the results of these measurements determine the reward structure of the simulation. Environmental Structuring, as a total concept, represents a behavioral reinforcement model of simulation design and construction, and enables playing groups to receive feedback on their actions from their actual counterpart groups in the real environment.

The creation of Environmental Structuring and derivation of several corollary theoretical assumptions from basic assumptions enabled the author to proceed with the development of an Environmentally-Structured simulation of a campus crisis situation. The result was the "Morningside University Simulation" (Pilot II), designed as an operating model or prototype and the next step towards development of a complete simulation. "Morningside University" was based upon a single well-documented campus crisis (Columbia University, 1968) in order to provide a factual basis for the various elements of the game. The actions undertaken by the various groups at Columbia University (during the Spring of 1968) became the basis of the Environmental Structuring Device or Questionnaire. Respondents rated each action on a prepared list according to their feelings about the

1See previous references and the author's article, "Morningside University: An Environmentally-Structured Simulation," in the December, 1970 issue of Simulation and Games Journal, as cited.
action, as expressed in three dimensions—Power, Support, and Tension. A Likert-type "1-5" scale was used for the response matrix of the Questionnaire, with a "1" indicating a strong positive or "increase" response to a stated action in terms of each dimension, and "5" representing a strong negative or "decrease" response to the stated action. The second part of the Questionnaire consisted of a group self-selection section wherein respondents chose one of four group descriptions as representing a group the respondent would most want to affiliate with or belong to. Additionally, the Questionnaire included a description of the history and background of "Morningside University" (Columbia), a set of detailed instructions for completing the Questionnaire, and a section for respondents to indicate their status in the institution (student, faculty, administration).

The "Morningside University Simulation" was played two times by the members of two graduate classes at Loyola University of Chicago in the Spring and Fall of 1970. Most members of both classes were already serving in administrative and student personnel capacities at a variety of institutions. Questionnaires were filled out by one of the classes prior to the first playing of the game. Members of the class were assigned roles before completing the Questionnaire and were instructed to respond "as if" they were the person whose role they had been assigned. Results of this questionnaire were used to structure the feedback to playing groups during both sessions of the game.

Players' evaluations (subjective), game administrators'
observations, and post-game discussion conclusions enabled the author to undertake extensive development work on a completed version of an Environmentally-Structured campus crisis simulation. This new simulation, called ESSIMU-I (for Environmentally-Structured Simulated University-I), drew extensively upon development work carried out with Pilots I and II, and incorporated much of the material used in these pilot versions. Major revisions were made in the following areas:

1) Response Dimensions—two of the three response dimensions used in the Morningside University Simulation were eliminated because of possible problems of validity and reliability along with some inconsistency with established principles of attitude measurement. The Support or S dimension was retained and all actions were rated along this dimension on a "1-5" Likert scale, with "5" indicating maximum support of an action and "1" indicating maximum opposition to an action.

2) Scoring Scheme—the scoring scheme was standardized and simplified so that playing groups receive feedback provided by their "actual" (as indicated on the Questionnaire) counterparts on a particular campus. Responses are classified according to the status of each respondent (student, faculty, or administration) and his self-selected group description preference. Thus each action had a separate mean S value for each playing group which might select that particular action and carry it out in the course of the game. The appropriate S value is "fed
back" to a playing group when they choose a particular action in order to reinforce (by indicating the degree of approval of their actual counterpart group) their behavior in the game.

3) Group Goal—the revised scoring scheme enabled simplification of each group's goal into a single identical goal for all groups ("... to obtain the maximum number of Support points").

4) Action List—the "Morningside University Simulation," because it was based upon a specific campus crisis, presented players with a limited list of actions from which to choose. A considerably broadened and revised list of actions was drawn up, based upon extensive examination of available materials and reports on campus crises occurring in the United States over the past few years. This revised list, it is felt, greatly increases the courses of action open to playing groups and offers many possible routes for the game to proceed along (including peaceful resolution of the crisis, if desired). Players are also able to create a crisis, based upon their own campus issues. Additionally, the master list of actions was divided into three sections—student actions, faculty actions, and administrative actions—so that a single playing group could choose from a full range of actions available to all groups with that status (such as student groups).
ESSIMU-I was first played with simulated norms at the 1971 American College Personnel Association National Conference in Atlantic City, New Jersey. The twelve players were primarily college and university administrators and general verbal reactions to the game were very positive. Specific recommendations and game administrator observations were recorded and some parts of the game were altered slightly to facilitate efficient operation of the game by the administrator.

TABLE 1. - Summary of Development of ESSIMU-I

<table>
<thead>
<tr>
<th>Name of Simulation</th>
<th>No. of Players</th>
<th>Played</th>
<th>Play Time/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crescent University (Pilot I)</td>
<td>8</td>
<td>January, 1970</td>
<td>1 hr. Simple role-playing game done as feasibility study</td>
</tr>
<tr>
<td>Morningside University (Pilot II) (approx.)</td>
<td>26</td>
<td>May, 1970</td>
<td>1-1/2 hr. Used 3-dimensional questionnaire; based on Columbia University crisis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 October, 1970</td>
<td>1 hr.</td>
</tr>
<tr>
<td>ESSIMU-I</td>
<td>12*</td>
<td>1970</td>
<td>1-1/2 hr.* Completed version; used simplified questionnaire</td>
</tr>
</tbody>
</table>

*Estimated maximum number of players = 80 (10 per group); estimated maximum playing time = 5 hours.

Findings and Limitations

The simulation "art," as exemplified by the study, presently emphasizes the initial stages of research methodology, i.e.: 1) "Selecting an Area" [of study], 2) "Getting Ideas,"
3) "Using Previous Work," 4) "Defining the Scope of the Study,"
5) "Selecting the Research Strategy," and 6) "Developing Measures and Techniques." The extensive development work undertaken above can best be summarized by the following "finding" by the author:

Simulation-game techniques appear to offer unique possibilities of providing both on-the-job college and university administrators and administrators-in-training with opportunities to experience the emotional, interpersonal, and organizational elements of a major campus crisis while still permitting "safe" consequences of decisions, and allowing careful analysis of the dynamics of such a crisis. Aside from an actual campus crisis, it is only through such techniques that administrators can achieve integration of both theoretical and practical aspects of campus disturbances.

This study has achieved its objectives, as expressed by the above statement, through the integration of materials from several related fields, development of theoretical assumptions and testable hypotheses for a simulation, development and publication of an original simulation technique, and the creation of a completed campus crisis simulation.

Some Implications

Implications of this study are many and an extensive list of the more obvious implications could be presented. However, the single major implication is that college and university administrators must increasingly resort to new techniques and fields of study in order to develop appropriate responses to the growing number and complexity of problems of higher education.

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education. Innovative approaches to problem solution must be firmly grounded in fields and techniques that frequently cut across traditional disciplines and incorporate within them the ability to weld together theoretical and practical aspects of the problem and its solution. Chapter I pointed out that administrative styles often rely on procedures and routine operation models that are not capable of responding adequately to unexpected circumstances. Administrators must be prepared for all situations. They must be prepared for that time when the unlikely and the impossible become the inevitable.

And what does the future hold? The past year has been one of relative calm and quiet on the nation's campuses. But the astute observer of the college scene is not predicting a decade of peace and quiet--the "eye of the storm" analogy may be more accurate than many would hope. President William J. McGill of Columbia University recently said

... for a while we may safely expect much agitation, much pressure for liberation, and repeated tense confrontations. If somewhere someone slips in the heat of such action we may again see occasional outbursts of real violence.¹

Suggestions for Further Study

EXXIMU-I is a complete simulation in that the initial development work has been completed. However, extensive empirical research as to the behavioral results of the game is needed. Additionally, the basic theoretical assumptions underlying the game must be tested. In order to undertake these

steps it is recommended that final development work and publication of the ESSIMU-I Kit be carried out by a recognized educational testing/consulting firm. Once this final development work has been carried out, ESSIMU-I materials should be distributed to a representative sample of colleges and universities where the game can be played and playing results can be evaluated through techniques similar to those used in leadership training and/or T-group work. Results of these playings and evaluations, and the analysis of related data can be applied to hypothesis-testing of ESSIMU-I's theoretical assumptions, as well as further modification of the ESSIMU-I materials if necessary. It will then be possible to standardize the game and make it available on a wide scale.

Aside from the above suggestions for further study of ESSIMU-I, it should be pointed out that Environmental Structuring, as a new technique of simulation construction, should itself be the subject of extensive empirical analysis and development work. Major concerns should include the validity and reliability of environmental structuring devices, adequacy (comprehensiveness) of items and rating schemes, and applicability of the technique of Environmental Structuring to simulations in other fields.

In the long run, it may well be that the true value of the work presented above may not lie with the specific simulation created, but with the creation of a simulation technique that will considerably enhance the behavioral value of simulations to players.
Crescent University Simulation

Materials
Situation

Crescent University is a private university of 6,700 students (1/2 resident students) located in a large suburb. The school is currently receiving several federal and state loans to finance a large building program. Early in the current school year a militant student organization, the Students for Action or S.F.A., was formed. They immediately began passing out radical literature in the student union, despite the fact that only recognized campus organizations were permitted to use the union facilities. The student personnel staff decided to let them continue, rather than force the issue. The S.F.A. also sponsored several anti-war demonstrations and rallies, most of which were well-attended.

Two weeks ago S.F.A. members shouted down a speaker from the federal government. The President warned the students involved to refrain from any further such actions. Last week a recruiter from the Halley Company, which manufactures equipment used in the war, came on campus to interview students. The S.F.A. organized a demonstration and successfully blocked the recruiter from entering the placement office. They then surrounded him and sprayed him with red paint. Campus police noted the names of six students involved in the paint spraying and turned the names over to the President. He called all six into his office and, after they acknowledged themselves to be
the leaders of the demonstration, he suspended them from school for one year.

That night the S.F.A. held a rally attended by an estimated 3,000 students. At the rally they denounced the President as a "fascist" and called for a "decisive" response by the students to his actions. The S.F.A. then announced it had drawn up a list of demands that must be met by the administration if they did not want the university destroyed. The rally ended peacefully. It is now the next day....

MESSAGES FOR THE PRESIDENT

(All received as a result of last night's rally)

1) Representatives from the national and local press would like a statement from the President about the events of the last few days.
2) The chief of the city police called and offered any assistance.
3) The President of the Alumni Council called and said he is counting on the President to deal with "those young punks" sternly and immediately.

STUDENTS FOR ACTION (S.F.A.) - RULES

1) Any and all tactics currently used by militant students may be utilized, including: sit-ins, rallies, disruption of campus events, take-overs, etc. "Actions" occurring outside the physical area of the "administration building" (Room 914) will be carried out by writing the "action" on a slip of paper and giving it to the judge, who will then announce it to the administrators (unless representatives from the S.F.A. wish to announce it themselves, in which case the "action" must first be approved by the judge).
2) All "actions" will be ruled upon as to their acceptability by the judge. The criteria will be realism and feasibility.
3) All S.F.A. meetings will be conducted in the "participatory democracy" manner.
4) Any written statements, demands, etc. by the S.F.A. will first be submitted to the judge for his approval (based on the criteria cited above).
S.F.A. - DEMANDS

1) The six students suspended by the President will be reinstated.
2) The President shall no longer be permitted to unilaterally suspend students.
3) Students shall be given voting power in all disciplinary cases.
4) The University shall no longer permit "war industry" recruiters on the campus.
5) Students should have 50% representation on major policy-making university committees.

ADMINISTRATION - RULES

Time Limit - 45 minutes

1) Administrators may only meet together when a meeting has been called by a) the President or b) the Dean of Students. At all other times communication is to be by individual ("1-to-1") meetings or by memo (passed first to the judge).
2) Administrators will maintain communication through channels, first going to the appropriate superior.
3) All outside agencies (police, fire company, press, etc.) will be represented by the judge. Any administrator wishing to communicate with a particular agency must identify the agency when talking with the judge.
4) Any written statements to the students must first be passed to the judge.

ADMINISTRATION - PRINCIPLES

1) The "chain of command" will be maintained at all times. Students wishing to see a higher-level administrator will first be referred to a lesser official or to the appropriate official.
2) Disruption of regular university activities will not be tolerated.
3) Reason, rather than force, is the only permissible means of working out problems.
4) Staff members will support one another's actions.
5) Decisions should not be made without consulting the proper administrators.
## CRESCENT UNIVERSITY SIMULATION

**Evaluation Scale: Sample**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Group</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Interest</th>
<th>0</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Value</td>
<td>0</td>
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<tr>
<td>Net Worth</td>
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<td>10</td>
</tr>
</tbody>
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`0` represents the lowest score, `10` represents the highest score.
APPENDIX II
ESSIMU-I

Questionnaire

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165
GENERAL INSTRUCTIONS FOR THE QUESTIONNAIRE

This questionnaire is designed to gain some understanding of your opinions and attitudes about a hypothetical crisis situation on your campus. The first section of the questionnaire consists of a very brief and general description of the campus situation leading up to the crisis. This section should be read carefully before proceeding on to the second and third sections. Be sure to read the specific instructions for each section carefully and mark your answers clearly. Do not omit any questions and answer all sections of all questions. Work rapidly but carefully.

NOTE: Because this questionnaire and your responses are strictly anonymous and confidential, DO NOT WRITE YOUR NAME anywhere on the questionnaire.

Thank you for your help and cooperation.
THE CAMPUS SITUATION

During the past few weeks campus tensions have increased considerably. Rumors have circulated that one or several student groups might take some actions against the college, its administration, the community, and/or government policies. While some say the rumors are only rumors, many feel they are justified. Several of the student groups mentioned in the rumors have held long meetings from which all non-members were barred.

The administration recently re-stated its policies on demonstrations, obstruction of normal campus activities, and campus violence. Yet tensions have continued to rise. Some community leaders have charged that the administration is not prepared for trouble and that students are planning violence. A few alumni recently visited the campus to "cool things down," but were not able to accomplish much.

It is a warm day, and the campus newspaper has just come out with the headline, "Trouble Expected on Campus" . . .
INSTRUCTIONS FOR PART I OF QUESTIONNAIRE

On the following pages are listed several "actions" which could be taken by various groups on your campus in view of the campus situation presented on the previous page. Note: You need only complete the section for the group--student, faculty, or administration--which you are in (as checked above). Do not complete the other sections.

For each listed action you are to indicate your degree of support of or opposition to this action, should it occur on your campus. Each action is to be rated according to the following method:

1 = would actively oppose this action and attempt to prevent its undertaking.

2 = might oppose this action or might attempt to prevent its undertaking.

3 = not sure.

4 = might participate in or support this action if situation warranted.

5 = would definitely participate in or support this action.

To rate each action circle the number that best expressed your feelings in terms of the above statement. Please rate each action and do not skip any items.
Item Examples:

**Action:** Sell ice cream on campus.  

1 2 3 4 5

Circling the 2 indicates that you might **oppose** this action or might attempt to prevent its undertaking.

**Action:** Hold classes outside on a nice day.  

1 2 3 4 5

Circling the 5 indicates that you would definitely **participate in or support** this action.

Remember to only fill out the section of your group (students, faculty, or administration). Complete Part I before reading the instruction for and completing Part II. Do not write your name anywhere in this booklet.
This section of the Questionnaire should be filled out by students only. It lists actions that might be undertaken by groups of students (the actions are arranged randomly). When you have completed this section, turn to the back of the Questionnaire and complete Part II.
STUDENT GROUP ACTIONS

1) Issue statement calling for faculty to take stand on issues.

2) Establish certain conditions for meeting with administrators.

3) Challenge administration on its policies.

4) Start "guerilla" raids around the campus, including minor destruction and verbal assaults on administrators.

5) Set up picket line in support of strike.

6) Committee of students, faculty, and administrators formed to arbitrate disputes.

7) Release of administrator(s) held captive.

8) Reject proposal to leave occupied building.

9) Form coalition of groups to plan demonstration.

10) Call for assistance from off-campus groups to support demonstration.

11) Vote to separate into Black and white groups.

12) Call for equal treatment of all demonstrators.

13) Charge school with "systematic racism."

14) Hold demonstrations in support of students occupying building.

15) Demand school be reopened after it has been closed by administration.

16) Call for massive general strike.

17) Call for non-violent resistance to police on campus.

18) Charge student group is racist.

19) Present demands to governor of state.
20) Demand explanation from administration of why police were used on campus.

21) Boycott of classes in support of demonstration.

22) Disperse peacefully at end of rally.

23) Block entry of others into occupied building.

24) Hold rally opposing demonstrators.

25) Enter classes and ask for support for demonstration from students and teachers.

26) Forcefully evict administrators from their offices.

27) Vote temporary suspension of class boycott.

28) Pass resolution condemning protest demonstration.

29) Join original group of demonstrators.

30) Issue statement reaffirming demands.

31) Fight with police on campus.

32) Meet secretly with administration.

33) Heckle administrator.

34) Call for discussion of issues raised.

35) Ignore summons to disciplinary hearing held by administration.

36) Urge use of police to end demonstrations.

37) Attack police with rocks and bottles.

38) Discuss events with faculty members.

39) Stay on strike despite temporary suspension of class boycott.

40) Meet with appropriate people about specific complaints.

41) Publish demands in school newspaper.
42) Pass resolution condemning building takeover and urging start of negotiations.  
43) Discuss events with administrators individually.  
44) Meet with administrators and faculty members and say demands must be met.  
45) Attack police and firemen on campus to put out fire.  
46) Vote to support use of police on campus.  
47) Peacefully give up for arrest.  
48) Comply with court order to leave building being occupied.  
49) Resist serving of court order demanding end to occupation of building.  
50) Set up negotiations with other areas of the college.  
51) Call off rally because of police on campus.  
52) Threaten to clear demonstrators out of building if administration doesn't take action.  
53) Hold administrator(s) captive until demands are met.  
54) Hold rally in support of demands.  
55) Demand start of negotiations.  
56) Vote to oppose boycott of classes.  
57) Call for resignation of the President if demands aren't met.  
58) Hold sit-in in administration offices.  
59) Attempt to cross picket line of demonstrators and attend classes.  
60) Issue statement declaring you will continue to occupy building until demands are met.  
61) Present college with "non-negotiable demands."  
62) Occupy a campus building.
63) Peacefully leave building and begin discus-
sions with administration.

64) Break store windows and set small fires in
downtown area.

65) Burn building on campus.

66) Call for amnesty for all students involved
in demonstrations.

67) Threaten violence.

68) Block downtown street.

69) Disrupt classes.

70) Reject administration proposal for estab-
lishing arbitration group.

71) Vote to end strike.

72) Vote not to occupy building.

73) Hold rally demanding campus be re-opened.

74) Attempt to break up rally of students
opposing strike.

75) March through administration building.

76) Hold rally of all students with grievances
about the school.

77) Block efforts to get food to those in build-
ings.

78) Urge firm action by administration against
demonstrators.

79) Attempt to protect captive administrator(s)
from demonstrators.

80) Establish time limit for meeting of demands.

(Proceed to Part II of Questionnaire at end of questionnaire.)
This section of the Questionnaire should be filled out by faculty members only. It lists actions that might be undertaken by groups of faculty members (the actions are arranged randomly). When you have completed this section, turn to the back of the Questionnaire and complete Part II.
FACULTY GROUP ACTIONS

1) Set up commission of community representatives, faculty, and demonstrators to review the issues.
2) Organize a group supporting student strike.
3) Set up negotiations with all elements of college represented.
4) Form committee to get police off campus.
5) Call for students to carry guns to protect themselves from "racist administrators."
6) Demand students enter into negotiations.
7) Support statement denouncing demonstrators.
8) Vote not to teach classes.
9) Call for dropping of all criminal charges against demonstrators.
10) Form group to settle dispute independently of administration.
11) Vote to implement some of demands of the students.
12) Decide not to interfere with students blocking supplies to demonstrators in building.
13) Establish intermediary in resolving dispute.
14) Threaten to strike in support of student demands and amnesty for students.
15) Meet with administration and establish basic issues.
16) Establish student-faculty court to hear discipline cases.
17) Attempt to persuade administration not to use police and to close school.
18) Vote to blame events on the students.
19) Ask administration to lift suspensions of those students involved in demonstrations.
20) Alter some of students' demands.
21) Hold discussions with demonstrators.
22) Form group "to help the school survive."
23) Obtain resolution of the strike.
24) Vote to "deplore" use of police on the campus.
25) Join striking students.
26) Vote to condemn building takeover.
27) Promote formation of student-faculty-administration discipline committee.
28) Urge use of police.
29) Vote to strike if President is fired by Board.
30) Support plans for new discipline procedures at the college and urge that suspension of students involved in demonstrations be set aside.
31) Condemn use of force by all sides.
32) Discuss individually with demonstrators.
33) Meet with demonstrators and administrators together.
34) Stand between police and demonstrators.
35) Urge commission be set up to deal with the problem.
36) Contact all segments of campus to attempt to resolve the dispute.
37) In conjunction with administration, file injunction preventing students from occupying buildings and committing acts of violence on campus.
38) Vote to establish arbitration panel to help resolve strike.
39) Vote to condemn administration's actions.
40) Vote to support demands of demonstrators.
41) Hold sit-in in administration office.
42) Establish committee to discipline students involved in demonstrations.
43) Vote to close the campus.
44) Propose method of peaceful solution of the crisis.
45) Establish committee to work with administration in resolving the crisis.
46) Pass resolution expressing confidence in ability of administration to handle the crisis.
47) Call emergency faculty meeting.
48) Vote "no confidence" in the President.
49) Condemn student actions and uses of police.
50) Reject proposal of amnesty for all demonstrators.
51) Establish committee to study the crisis.
52) Call for faculty to take its own action.
53) Hold classes as usual.
54) Vote to have police on campus taken off campus.
55) Vote to call on demonstrators to resolve crisis.
56) Object to Board's involvement in campus discipline.
57) Charge administration with being cause of trouble.
58) Hear demonstrators' side of events.
59) Vote support of administration actions. 1 2 3 4 5
60) Agree to discuss in classes issues of the crisis. 1 2 3 4 5
61) Plea for prevention of use of police. 1 2 3 4 5

(Proceed to Part II of Questionnaire at end of questionnaire.)
ADMINISTRATION

This section of the Questionnaire should be filled out only by members of the Administration. It lists actions that might be taken by individual administrators or by the administration acting as a whole (the actions are arranged randomly). When you have completed this section, turn to the back of the Questionnaire and complete Part II.
1) Offer to meet with all demonstrators immediately.

2) Meet with mayor of city and agree it is a serious situation.

3) Suspend arrested students and agree to aid in police investigation of demonstration.

4) Refuse to honor "unreasonable" request made by Board of Trustees.

5) Approve faculty recommendation to establish special commission to deal with the issues.

6) Announce will use police to clear campus.

7) Refuse amnesty for demonstrators.

8) Charge interference by Board of Trustees.

9) Authorize police to clear campus with "overwhelming force."

10) Commend demonstrators on their behavior.

11) Praise police for restraint.

12) Offer amnesty to students if they vacate building immediately.

13) Inform those occupying building that they are violating campus policies.

14) Acknowledge existence of racism in the school.

15) Announce will consider demands of students.

16) Try to rally faculty to end strike.

17) Lift suspensions of student demonstrators.

18) Call off meetings with demonstrators.

19) State will meet some of demands if occupied building is first evacuated.

20) State force will be met by force.
21) Initiate discussions with students and com-
munity leaders.

22) Issue statement saying administration will
handle its own disciplinary affairs.

23) Ban all rallies from campus, except limited
picketing, and also close campus to
"outsiders."

24) Alert police.

25) Suspend and expel many demonstrators.

26) Have police clear building of demonstrators.

27) Close campus for one day.

28) Set up commission of community representa-
tives, faculty, and demonstrators to review
issues.

29) Lift suspension of students suspended
earlier.

30) Indicate support of students' concerns and
urge all to work together to examine the
issues without violence.

31) Obtain additional money for security force
and establish liaison with city police.

32) Call for maintaining freedom of the school.

33) Accept demands of the students.

34) Ask students to leave halls so negotiations
can start.

35) Have classes resume.

36) Obtain court order for demonstrators to
leave the building immediately.

37) Warn students of consequences of holding
sit-in.

38) Suspend "militant" faculty member.

39) Meet with striking students.
40) State offer of amnesty will expire by certain deadline, and students not meeting this deadline will be suspended.

41) State that police will not be used unless violence occurs, and school will continue to operate.

42) Temporarily suspend students involved and notify them hearings will be held to determine if they should be suspended permanently.

43) Agree to some of demands.

44) Declare campus state of emergency and state that disciplinary measures will be accelerated.

45) Commend student demonstrators on their orderliness.

46) Call for "substantive" discussion of issues rather than violence.

47) State that if occupied building is allowed to remain open for regular traffic, there will be no interference with the demonstrators.

48) Reach settlement with demonstrators.

49) Designate ad hoc committee to recommend proposals for action to the administration.

50) Warn students they will be charged with criminal trespass if they don't leave building immediately.

51) Request city police for campus.

52) Refuse to respond to demands.

53) Close the school.

54) Reopen the school.

55) Charge some faculty with making "power grab."

56) Administrator visits occupied building alone to meet with demonstrators.
57) Speak against use of force.  
58) Call emergency faculty meeting.  
59) Have faculty members involved in demonstration arrested.  
60) Speak to crowd of demonstrators.  
61) Meet with faculty to establish basic issues of the crisis.  
62) President resigns from school.  
63) Establish policy of "open discussions."  
64) Suspend regular disciplinary procedures and set up special faculty-student committee for discipline.  
65) Call police for help.  
66) Meet secretly with student demonstrators.  
67) Warn those in building to leave by closing hours or face arrest.  
68) Hold emergency meeting to decide what to do.  
69) Obtain restraining order and serve it on demonstrators.  
70) Ignore occupation of building.  
71) Charge Board of Trustees' actions will cause drastic faculty reduction.  
72) State that police will be kept on campus to maintain order.  
73) Set up negotiations with all elements of school represented.  
74) Have city police withdraw from campus.  

(Proceed to Part II of Questionnaire at end of questionnaire.)
Part II
PART II
(To be completed by all)

Instructions

Below are listed statements or descriptions of several types of groups or organizations that might be found on a campus. Please check (X) the one group or organization that you would most want to affiliate with or belong to. If faculty or administrator, please check the group you would most want to advise or be associated with.

___ Group A: A group advocating direct action, resistance, and not very concerned about the alienation of potential political allies. The individual has the right to participate directly in all decisions affecting his life. Group A stresses protest demonstrations and confrontations aimed at disrupting the "establishment." Some members (not all) believe society and the university should be subverted and destroyed. Others believe in political action to mobilize the support of the majority of students.

___ Group B: A group aimed at giving members a "sense of identity" in the environment which they describe as "racist." Members are highly disciplined and remain separate from other students. They often press for separate facilities and special programs for their members.
Group C: A group that believes in preventing disruption of the campus—through their own action, if necessary, but preferably through administration action. They believe that those who disrupt the campus should be expelled or suspended and that most changes in the university structures, operations, or programs would do more harm than good. Administrators should administrate, teachers should teach, and students should learn.

Group D: A group that believes in orderly and gradual change using existing channels of communication and lines of authority. The existing structures and procedures should be supported until changes can be brought about through committee appraisal and majority rule, with veto power by chief executive officers.
ESSIMU-I

Players' Handbook

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Group: Black Students Organization

188
INTRODUCTION TO THE SIMULATION

ESSIMU ("Environmentally-Structured Simulated University") is a simulation or "game" involving a crisis situation on your campus. Through your participation in the simulation you will better be able to understand the dynamics of such a crisis, what brings the crisis about, how the crisis develops, and how it is resolved. In the simulation each player belongs to a particular group or faction which seeks to achieve its own unique goals while preventing other groups from achieving their particular goals. Each group functions as it would in reality and therefore it is important that you, the individual player FUNCTION IN THE GAME AS YOU BELIEVE AN ACTUAL PERSON AFFILIATED WITH THIS GROUP WOULD BEHAVE IN REALITY. It is only by so doing that you will receive maximum benefit from playing the simulation.

Before proceeding further, please read carefully the description of the present campus situation on the following page.

[over]
GENERAL INSTRUCTIONS

There are four key components to the simulation. These are: 1) Actions, 2) Goals, 3) Issues, and 4) the General Procedures.

1) Actions:

Each group has a list of actions which it can take during the game. This list of actions is attached to the end of this handbook. Only these actions can be taken by the group. Actions can be used in any order, and individual actions can be repeated. Each action has a point value of Support or S which is defined as follows:

Support or S refers to the degree of backing, in terms of participation in, support of, or opposition to the listed action.

2) Goal:

Each group's goal is to obtain the maximum possible number of Support points. Each group is to attempt to gain points by carrying out those actions which the group members feel will have the highest point values.

3) Issues:

The third component of the game is the Issues. Many of the actions that can be undertaken by the groups must have the details or reasoning behind them filled in by the players. Issues are to be developed by group members and are to be
relevant to your own campus. For example, if one of the actions available to a group is the presentation of a list of demands to the administration, and the group selects that action, the group should develop demands that would reflect realistically demands that such a group might actually have on your campus.

4) **General Procedures:**

General procedures are the instructions that tell you how the simulation is actually played by all the groups, and are listed in order below:

a) At the beginning of the game players will be assigned to different groups.

b) Each group will receive a scoring sheet to record its actions and their point values.

c) Different sections of the playing area will be designated by the game administrator to represent different sections of the campus.

d) Groups will go to the areas designated for them by the game administrator, and will start deciding, in view of the campus situation, what their course of action will be.

e) Each group will follow its own individual decision-making procedures and principles as outlined in the next section of this handbook. Before selecting an action, the group will analyze its possible results and consequences in view of the campus situation.
f) When a group has selected an action (from its master list) which it believes will best meet its goals, and when the issues have been developed, the number and description of that particular action will be recorded on the group's scoring sheet and on the reporting form. The reporting form will be delivered to the game administrator who will record the action on his master list and give the representative from the group the point value of that action.

g) Only after the selected action has been turned in to the game administrator and the group has been informed of the point values of that action will the group carry out the selected action. All actions reported to the game administrator must be carried out.

h) Actions will be carried out as they would in reality unless they would occur in an area of the campus not represented in the simulation. In such cases the action's number and description will be reported to the game administrator after which the group selecting this action will report its occurrence to other groups it believes should know such an action happened.

i) Any announcements, notices, etc. may be posted on the "Campus Bulletin Board" which will be designated by the game administrator.
j) All groups are responsible for establishing and maintaining communications with other groups involved in the game.

k) Periodically during the game "Campus News Releases" will be posted on the Campus Bulletin Board by the game administrator. Members of playing groups should check the Board for such releases, as these releases may affect the course of action they wish to take.

l) Any problems or difficulties should be taken to the game administrator as soon as they occur.

m) The game will end when, in the opinion of the game administrator, the campus crisis has been successfully resolved.

n) At the end of the game all materials will be turned in to the game administrator, and results will be announced and discussed.

[over]
BLACK STUDENTS ORGANIZATION

Group Description and
Operating Procedures and Principles

You are a member of the Black Students Organization (B.S.O.). Please read carefully your group's description and its operating procedures and principles. Your group is to function according to its description, and procedures and principles at all times. Remember, in order to derive maximum benefit from the simulation, you, the individual player, should FUNCTION IN THE GAME AS YOU BELIEVE AN ACTUAL PERSON AFFILIATED WITH THIS GROUP WOULD BEHAVE IN REALITY.

Description:

The Black Students Organization is aimed at giving members a "sense of identity" in the environment which they describe as "racist." Members are highly disciplined and remain separate from other students.

Operating Procedures and Principles:

The leader of the organization is elected by the group. He makes many of the decisions and group members usually unanimously support such decisions.
STUDENT GROUP ACTIONS

1) Issue statement calling for faculty to take stand on issues.
2) Establish certain conditions for meeting with administrators.
3) Challenge administration on its policies.
4) Start "guerilla" raids around the campus, including minor destruction and verbal assaults on administrators.
5) Set up picket line in support of strike.
6) Committee of students, faculty, and administrators formed to arbitrate disputes.
7) Release of administrator(s) held captive.
8) Reject proposal to leave occupied building.
9) Form coalition of groups to plan demonstration.
10) Call for assistance from off-campus groups to support demonstration.
11) Vote to separate into Black and white groups.
12) Call for equal treatment of all demonstrators.
13) Charge school with "systematic racism."
14) Hold demonstrations in support of students occupying buildings.
15) Demand school be reopened after it has been closed by administration.
16) Call for massive general strike.
17) Call for non-violent resistance to police on campus.
18) Charge student group is racist.
19) Present demands to governor of state.
20) Demand explanation from administration of why police were used on campus.
21) Boycott of classes in support of demonstration.
22) Disperse peacefully at end of rally.
23) Block entry of others into occupied building.
24) Hold rally opposing demonstrators.
25) Enter classes and ask for support for demonstration from students and teachers.
26) Forcefully evict administrators from their offices.
27) Vote temporary suspension of class boycott.
28) Pass resolution condemning protest demonstration.
29) Join original group of demonstrators.
30) Issue statement reaffirming demands.
31) Fight with police on campus.
32) Meet secretly with administration.
33) Heckle administrator.
34) Call for discussion of issues raised.
35) Ignore summons to disciplinary hearing held by administration.
36) Urge use of police to end demonstrations.
37) Attack police with rocks and bottles.
38) Discuss events with faculty members.
39) Stay on strike despite temporary suspension of class boycott.
40) Meet with appropriate people about specific complaints.
41) Publish demands in school newspaper.
42) Pass resolution condemning building takeover and urging start of negotiations.
43) Discuss events with administrators individually.
44) Meet with administrators and faculty members and say demands must be met.
45) Attack police and firemen on campus to put out fire.
46) Vote to support use of police on campus.
47) Peacefully give up for arrest.
48) Comply with court order to leave building being occupied.
49) Resist serving of court order demanding end to occupation of building.
50) Set up negotiations with other areas of the college.
51) Call off rally because of police on campus.
52) Threaten to clear demonstrators out of building if administration doesn't take action.
53) Hold administrator(s) captive until demands are met.
54) Hold rally in support of demands.
55) Demand start of negotiations.
56) Vote to oppose boycott of classes.
57) Call for resignation of the President if demands aren't met.
58) Hold sit-in in administration offices.
59) Attempt to cross picket line of demonstrators and attend classes.
60) Issue statement declaring you will continue to occupy building until demands are met.
61) Present college with "non-negotiable demands."
62) Occupy a campus building.
63) Peacefully leave building and begin discussions with administration.
64) Break store windows and set small fires in downtown area.
65) Burn building on campus.
66) Call for amnesty for all students involved in demonstrations.
67) Threaten violence.
68) Block downtown street.
69) Disrupt classes.
70) Reject administration proposal for establishing arbitration group.
71) Vote to end strike.
72) Vote not to occupy building.
73) Hold rally demanding campus be re-opened.
74) Attempt to break up rally of students opposing strike.
75) March through administration building.
76) Hold rally of all students with grievances about the school.
77) Block efforts to get food to those in buildings.
78) Urge firm action by administration against demonstrators.
79) Attempt to protect captive administrator(s) from demonstrators.
80) Establish time limit for meeting of demands.
Chapter I: Statement of the Problem


Chapter II: Organizations, Administrations, and Crisis


\textbf{Chapter III: Simulations}


McKenney, James L. Simulation Gaming for Management Development. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1967.


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Sleeper, Martin E. "A Simulation Game in International Relations," The Social Studies, LIX (November, 1968), 261-264.


Zelditch, Morris, Jr., and Evan, William M. "Simulated Bureaucracies: A Methodological Analysis," in Simulation in

Note: The items listed below were not obtainable by the author but are directly related to Chapter III.


"Games People Play," Newsweek, 70 (December 18, 1967), 44.

"Games Students Play," Time, 87 (June 3, 1966), 51.


Chapter IV: Procedure


Note: The materials below were used in the preparation of game materials for the Morningside University Simulation and ESSIMU-I:


"Bust at Harvard," Newsweek, April 21, 1969, pp. 102-103.


"From North to South: Southern University, Stanford University," Newsweek, May 26, 1969, p. 76.


Chapter V: Summary and Conclusions

*Intercollegiate Press Bulletins*, November 22, 1971, p. 88. (Speech by President William J. McGill of Columbia University.)
The dissertation submitted by Eugene A. Scanlan has been read and approved by three members of the School of Education.

The final copies have been examined by the advisor of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

May 16, 1972
Date

Roberta Christie
Signature of Advisor