THE ROLE OF SIMULATION IN THE TEACHING OF INTERPERSONAL COMMUNICATION: A DESCRIPTIVE CASE STUDY

THESIS

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By

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This investigation opened with justification of the association of simulation and rhetoric found in the works of Bitzer, Bryant, Burke, and Nichols. It then focused on some advantages that association provides in the classroom: provides learning experiences for diverse groups, applies to problem-solving, gives variety to lecture approach, develops social behavior, and increases awareness of alternatives.

A list of simulation procedures was provided for specific rhetorical principles: cooperation/competition; decision-making; reasoning; recall; perspective; negotiation; and goal-setting. Existing, modified, and original games were included.

Simulation with a college Interpersonal Communication class provided two case studies. Procedures, results, and evaluative feedback described degrees of effectiveness, and future application and research were also provided.

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CHAPTER I

INTRODUCTION

A teenager ready to learn driving skills, an executive selected for management training, and a university student studying computer science appear to be involved in completely separate areas but, a similarity does exist with at least one of the procedures to be used in their training. Simulation procedures seem to be growing more popular for teaching various concepts and skills. Simulation procedures are defined as the construction of a system in one medium to create a working model of a system that exists in another medium. Simulation procedures involve abstracting elements, concepts or skills, from one situation to another, so that mastery of these elements is more efficient and feasible. Most systems are too complex to model without great abstraction, except in the medium of the digital computer. For example, primary driving skills such as steering the wheel can be taught with more efficiency and with much greater safety in a simulated car than behind the wheel in an actual car. There is also less risk to property and persons.[1]

In many simulations there is a role-play aspect. Role-play can but does not have to be a part of simulation. The two concepts often overlap but can and do exist separately

as well. Most of the simulations considered in this investigation involve role-play.[2]

Purpose of the Study

The purpose of this investigation will be to delineate the role of simulation procedures in the teaching of interpersonal communication. The investigation will assume the descriptive case study format.

Survey of Relevant Literature

In researching this topic, no previous studies that considered simulation as a rhetorical tool were located. Sources evaluated included: Speech Monographs, 1964-69; The Comprehensive Dissertation Index, 1861-1973; and Dissertation Abstracts International and Bibliographic Index, 1970-74. Some related studies were located.[3] The only one relevant to this investigation was the dissertation by Michael L. Turney at the University of Iowa in 1973. His dissertation considered simulation procedures in relation to journalism, an area up to that point unexplored. Turney proposed that there are eight uses to which journalism/mass communication educators can put simulation games. These uses are:

1. Simulation-games can introduce new students to some of the basic processes of mass communication and individual communication.
2. They offer students rudimentary experience with the types of work and activities they are likely to encounter if they pursue mass media careers.
3. Participation can provide an overall view or feel for the total process of mass communication.

4. Closed-system simulation-games can provide factual information or specific-skill-training in various journalistic techniques.
5. Simulation-games help develop a general problem-solving orientation and encourage students to set goals for themselves and then work towards achieving them.
6. Simulation-games encourage students to develop decision-making acumen.
7. Simulation-games provide an opportunity for students to actively integrate skills and theories they learn in other journalism/mass communication classes, and test various strategies of their own.
8. Broad-system-oriented simulation-games can help students view the process of mass communication within the framework of the total society.[4]

Procedure to be Used

In order to observe some of the theory as practice, a freshman level Business and Professional Speaking course at North Texas State University served as the parent population for part of the investigation. Through consultation with the instructor, simulation procedures were selected that had direct bearing on forthcoming assignments during the progress of the course.

Two particular speaking situations were selected, although several other types of speeches could equally have been utilized had the length of time for the course permitted. The first assignment selected was referred to by the instructor as a "process speech," in which the focus of the assignment was to communicate some series of steps or processes to the audience; there were twenty-seven students enrolled in the course, with little history of absence in this section. A

new simulation game entitled "Red Tape" was designed to teach some of the fundamental principles for process.

The second speaking situation involved a group discussion format for which the existing game "Pine County" was modified. In neither instance did the instructor cover in a lecture the specific principles which were the purview of the respective simulation procedures. Both games were used in other classes to ascertain applicability; some modifications were then made prior to administering the simulation to the class involved in the study.

Several attempts were made to validate the conclusions provided in Chapter V. Trained observers in interpersonal communication observed the simulation procedures. A teacher in the school system with over fifteen years of experience in teaching was also used as an observer. The instructor of the course was not in class on either day that the simulation procedures were implemented; he quizzed the students the next class section to ascertain if knowledge had been obtained. Several class members also provided feedback in individual interviews.

Summary

In short, simulation procedures are sufficiently establisthed to provide justification in the teaching environment. Applying some of these validated principles to the field of rhetoric in general and interpersonal communication in specific was the thrust of this investigation.

NOTES

[1]Texas Department of Public Safety Bulletin 0894501.

[2]John L. Taylor and Rex Walford, Simulation in the Classroom (Harmondsworth, Middlesex, England: Penguin Books Ltd., 1972), p. 18.

[3]Judith Rae Holland, "The Effectiveness of a Simulation Game Approach to the Teaching of Budget and Finance in Athletic Administration," University of Southern California, Dissertation Abstracts, 1974, p. 2034A; Ulane Rebecca Klein, "The Uses of Simulation Technique as an Integral Part of a School Psychology Training Program," Ohio State University, Dissertation Abstracts, 1974, p. 2772A; Dorothy Perlis Rothbart, "Effects of an Office Simulation on Student Attitudes Toward Work," University of Pittsburg, Dissertation Abstracts, 1973, p. 950A; Verda M. Scheifley, "Analysis of Repeated Measures Data: A Simulation Study," Michigan State University, Dissertation Abstracts, 1974, p. 1513A; William Ambler Sibley, "Effect of Simulation Games on Attitudes of Sixth-Graders Toward the Environment," University of Virginia, Dissertation Abstracts, 1974, p. 2075A; and Michael L. Turney, "Mass Communications Games: Simulation Games for Teaching/Learning about Journalism/Mass Communication," University of Iowa, Dissertation Abstracts, 1973, p. 492A.

[4]Turney, p. 67.

CHAPTER II

RELATIONS BETWEEN SIMULATION AND RHETORIC

Any investigation of systems carries with it the concept of interest in the process of learning.

> The sciences that are building mechanisms adequate to model the human mind are the sciences of systems. The properties of economic systems, ecological systems, evolutionary systems, neural systems, and biochemical systems appear to have a great deal in common. All these systems are constructed from flowings of the same substance--information. To be understood formally, information theory must be expressed mathematically, but the verbal expressions of the field are what will get you interested.[1]

The process of learning in the area of interpersonal communication benefits from the dual processes of simulation and rhetoric.

The Role of Simulation Procedures

Interpersonal communication, the process of transference of knowledge from one person to another, involves a set of parallel processes. Various channels work simultaneously to convey information. Nonvocal, nonverbal, verbal, and vocal aspects all influence the knowledge communicated. Rather than a simple process of symbol-understanding, communication involves many levels of meaning exchange. Our modern world is almost wholly dependent on the skill with which we communicate. It seems extremely meaningful to examine some specific processes by which we communicate, especially those which utilize

individual channels of initiation and various procedures within the system. Simulation procedures are effective teaching devices in this parallel process.

Almost all individuals have experienced interpersonal communication. Once we have learned the language, we participate instinctively, with a threshold of awareness about what or how we are actually communicating.

> Although we experience the world in bits and pieces, the sequence in which we experience them flows together and we feel the world around us as a continuous panorama. When we try to communicate /interpersonally/ about it, we have to break it down into bits and pieces.[2]

Learning through most traditional classroom methods involves learning in "bits and pieces." Lecture limits learning to the number of symbols used and understood by sender and receiver in the communication process.

> The number of words . . . that an educated adult uses in daily conversation is about 2,000. Of these, the 500 most frequently used have 14,000 dictionary definitions. This is a . . . small number of symbols to describe . . . the diversity of human experiences.[3]

Innumerable meanings and nuances are inevitably attached to many word-symbols.

Simulation processes as teaching devices allow one to experience concepts abstracted from real situations. Learning is not in pieces or chunks, but involves a more integrated experience. The sequence of cause-effect, the how-and-the-why are related by actual knowledge or experience within the concept. Simulation in the basic areas of interpersonal

communication is not only effective as a teaching device but is also important for an understanding of one specialized part of the total system.

Simulation games and exercises, already in use, may be utilized to teach rhetorical concepts in the field of interpersonal communication. Individual problem-solving can be learned through involvement in adaptations of such games as "Prisoner's Dilemma," "Joe Doodlebug," or "In-basket." Group problem-solving techniques are developed by participation in games such as "Ralph," "Blind," or "Metropolis." "The Wooden Blocks" simulation is a competition-cooperation exercise. Individual feedback can be learned from the simulation "Portrait Game." Experience in controlling and influencing communication is understanding to be potentially gained from "Ball Game." The popular simulation "Starpower" focuses on power-ratios, use of power, group identities, and participatory democracy.

> Participants in these simulations take the roles of national leaders, corporation presidents, pressure-group members, et cetera, make decisions based on their assessment of a situation, and experience simulated consequences. Hopefully, the theory goes, a participant will feel the same environmental and institutional pressures as his real (-world) counterpart would.[4]

The simulation game "Pine County" can be used in a basic interpersonal communication classroom to abstract the concepts of information-sharing and problem-solving. Rhetorical principles involved include awareness and understanding of

alternatives, analysis and utilization of logical appeals, as well as the quantity and quality of individual contributions toward eventual selection. In "Pine County" the participants are asked to consider six specific alternatives in selecting the one justifiable according to stipulated criteria. Careful analysis of each alternative, evaluation of logical versus emotional appeals, and sharing of the knowledge known by one particular individual are all employed.

Many other simulation games in current use can be adapted to teach rhetorical principles. The reason for this is partially due to the fact that most simulation situations, just as most of life situations, involve the interaction of one person with another. Simulation games can also be created by the instructor either by modifying an existing game or by inventing a new set of details to implement a desired procedure.

Specific Application of Simulation Procedures

Simulation experiences are thus effective as teaching devices. Jean Piaget said:

> Knowledge is not a copy of reality. To know an object, to know an event, is not simply to look at it and make a mental copy, or image, of it. To know an object is to act on it. To know is to modify, to transform the object, and to understand the process of this transformation, . . . An operation is thus the essence of knowledge, it is an internalized action which modifies the object of knowledge. . . . Intelligence is born of action. . . . Anything is only understood to the extent that it is reinvented. People in daily life constantly invent and reinvent situations in order to learn from them. Yet too often people fail to recognize that reinventing a situation in which one

> has been an actor and perhaps reliving or revising decisions made is, in effect, to play a simulation game. People tend to look for an abstract pattern within the situation or to compare situations in order to come to some new abstract conclusion. Yet they often fail to realize that it is an active simulation which has led to their new abstract knowledge.[5]

Assimilation of new knowledge, especially when in abstract form as in game situations, is facilitated by the simulation process which seems less threatening than many real situations.

> Simulation . . . is always involved in a game and the game itself becomes an active dynamic, and changing learning environment . . . Games are effective teaching and training devices for students of all ages and in many situations because they are highly motivating, and because they communicate very efficiently the concepts and facts of many subjects. They create dramatic representations of the real problem being studied. The players assume realistic roles, face problems, formulate strategies, make decisions, and get fast feedback on the consequences of their action. Also with games one can evaluate . . . performance without the costs of having errors made in "real-world" tryouts and without some of the distortions inherent in direct examination . . . Serious /simulation/ games offer us a rich field for risk-free, active exploration of serious intellectual and social problems.[6]

Simulation situations are especially effective as teaching devices when experimentation with the concept in its real setting would be too risky or too expensive, if available to the student at all.

At least three major attributes of simulation attest to the effectiveness of the procedure in general use:

1. It is a technique oriented toward activity in the classroom, and in such activity both teachers and pupils participate. It represents

an informal and corporate approach to the understanding of a situation.
2. It is usually problem-based and therefore helpful in the development of inter-disciplinary approaches to learning. . . .
3. It is a technique which is fundamentally dynamic. It deals with situations that change, and which demand flexibility in thinking and responsive adaptation to circumstances as they alter.[7]

Simulation techniques are effective in specific instances. Simulation games are in use currently by teachers for classroom instruction in social sciences, sciences, mathematics, and guidance counseling.[8] Educational administrators such as school superintendents and principals use these techniques to plan curricula, to assign teaching staffs, and to allocate facilities and equipment.[9] War simulations are used by the government to train soldiers.[10] Motor vehicle simulators are used to simulate cars and teach driving skills.[11]

> The physical scientist or engineer experiments in a simulated reality with reduced-scale models of new devices or processes. He builds a replica of a real-world device, such as a modern airplane, and tests it in a scaled-down, simulated environment, such as a wind tunnel.[12]

A simulation game model for national economic behavior has been developed by economists.[13]

Games of strength and skill in early civilizations seem to have been simulations preparing for the realities of war. Examples are Greek javelin throwing as a test of physical prowess, Roman soldiers' battles in the coliseum as a test of war skills, and African rites of staying alone in the jungle as a test of manhood.

Theories about how things or people are related to each other are defined in the simulation's relationships. Experiments with the simulation model test various solutions and alternatives. This practice has a number of advantages. Among the advantages which simulation can provide are: (1) providing learning experiences for diverse types and various groupings of persons, (2) applicability to problem-solving situations, (3) variety in the textbook-lecture approach, (4) development of social behavior, and (5) increased awareness and understanding of alternatives. A brief explanation of these advantages follows.

Simulation enables learning for diverse types and groupings of persons. Simulations are effectively used with varying types of age groups. "Use of simulation games with students near the bottom of the academic ladder has proved to be one of the most promising means of teaching him."[14] A number of simulations appear to have been useful with both gifted and slow learners at the same time.[15] In higher education, novices and professionals have also seemed to learn from each other.[16] Groups of mixed age levels, backgrounds, beliefs, and different levels of achievement are as beneficial as the more traditional groupings of similar persons.

Simulation also provides advantages in problem-solving situations.

> Simulation games stimulate, reward, and judge intuitions according to pragmatic standards rather than doctrinal ones. Enlightening intuitions are rewarded for their superior problem-solving speed over systematic analysis. . . . The ideal problem-solving strategy

> that emerges for most players combines intuition and analysis--analysis used to check intuition, and intuition used to extend analysis beyond familiar limits.[17]

> As the participant thinks for himself about the decisions he may make during the simulation, he also comes to understand the impact and consequences for his own and other's actions. Almost every element or component in the decision-making process can be introduced. Data must be selected and organized. The relevant must be recognized . . . cooperation and competition, organized and managed.[18]

> Simulation games help develop a general problem-solving orientation and encourage students to set goals for themselves and work towards achieving them. Simulation games encourage students to develop decision-making acumen.[19]

A third advantage of simulation is its capability to replace or vary the traditional textbook approach of presenting pure lecture material.

> Simulations . . . are conventional enough in appearance and superficial effect to gain acceptance into the public school system, and yet they: a) excite students about learning; b) help them learn by provoking inquiry; c) provide experiential tools for learning; d) influence the classroom climate so that subsequent sessions allow more relevant learning activities.[20]

> The importance of teaching concepts . . . has been enthusiastically endorsed by proponents of games. . . . Simulation is uniquely fitted to convey conceptual knowledge. . . . Simulation involves the student in a dynamic situation, bringing to life what might otherwise have been a vague abstraction that scarcely gets beyond the printed symbols on a page.[21]

The advantage of development of social behavior is also possible with simulation. It offers an opportunity to experience cooperation, competition, empathy, and efficacy, all skills necessary to obtain objectives. It also provides a penalty payment for lack of skills or poor judgment.

> The making of classroom learning into a team sport offers the possibilities of applying the best motivational and socializing values of athletics and competitive intellectual activities. It may also lend a kind of formal legitimization of adolescent values to the learning process itself.[22]

Integration of skills and theories and testing of strategies are also important parts of learning social behavior. Simulation offers the advantage of experience in these areas as well.

The gaming procedure has the additional advantage of increasing one's awareness and understanding of alternatives. ". . . simulation can help students view the process of . . . communication within the framework of the total society."[23] It requires "strategies be invented and alternative courses of action on occasion must be planned and implemented. The occurrence of uncertainty must be held in account."[24] Simulation demands involvement of the participant and increased involvement results in increased awareness.

> Simulation also has a particular advantage to offer in the way in which it can present an integrated or synoptic view as well as a vehicle for interdisciplinary communication. . . . Human, economic, aesthetic, moral factors may all impinge in unfamiliar surroundings. And the fact that participants are required to see the world at least partially through eyes other than their own often helps them to be more explicit and less guarded about what they see.[25]

Simulation participants also are exposed to real-life decisions in risk-free environments. Thus, real decisions can be made without danger to one's person, to others, or to expensive resources. "One can make mistakes and learn from them and perhaps later apply their insights in similar or in relevant real-world contexts."[26]

Role of Rhetorical Situations

The reason that select rhetorical skills can be transmitted by simulation-gaming procedures in the interpersonal communications classroom is provided by Donald C. Bryant. He felt that the function of rhetoric was "the adjusting of ideas to people and of people to ideas."[27] He defined rhetoric as "the method, the strategy, the organon of the principles for deciding best the undecidable questions, for arriving at solutions of the unsolvable problems, for instituting method in those vital phases of human activity where no method is inherent in the total subject matter of decision."[28] He noted some of the functions of rhetoric are also relevant to simulation. "Rhetoric is primarily concerned with the relations of ideas to the thoughts, feelings, motives, and behavior of men. Rhetoric as distinct from the learnings which it uses is dynamic; it is concerned with movement. It <u>does</u> rather than is. It is method rather than matter."[29]

Simulation-gaming procedures deal with understanding relationships between ideas and people.[30] Simulation is basically a process or a method.[31] "Learning that takes place in simulation might be called 'active' learning . . . continually moving on to new things, but with some of the old--with new glimpses of reality accumulating as time passes."[32] Simulation is able to fit these definitions of rhetoric.

The gaming procedure constructs a system or concept in one medium to approximate a working model of a system or concept

that exists in another medium. Vocal and nonvocal verbal behavior, elements of rhetoric, are abstractions--the word symbols of reality. They compose a system, or language, which is modeled from perceived reality. While not all simulations are rhetorical nor is all rhetoric simulation, the two constructs have a great deal in common.

Rhetorical procedures of evaluation are applicable to many simulation situations. Lloyd Bitzer defined three constituents of any rhetorical situation:

1. Exigence--an imperfection marked by urgency. It is a defect, an obstacle, something waiting to be done, a thing which is other than it should be. An exigence which cannot be modified is not rhetorical. An exigence which can be modified only by means other than discourse is not rhetorical.
2. Audience--consists only of those persons who are capable of being influenced by discourse and of being mediators of change.
3. Constraints--persons, events, objects, and relations which are parts of the situation because they have the power to constrain decision and action needed to modify the exigence. Standard sources of constraints include beliefs, attitudes, documents, facts, traditions, images, interests, motives, etc.[33]

"Pine County," a typical but specific simulation game example, can be analyzed using Lloyd Bitzer's constituents of a rhetorical situation. The exigence is the focus of the simulation task, the necessity of deciding which of the six persons it was justifiable to hire. The participants represent element two, the audience. They are the mediators of change. The constraints in "Pine County" are mostly built into the simulation within the data supplied to each of the participants.

Age and school requirements are but two examples. This element of the "rhetorical situation" is the source of justifying exclusion of all but one of the candidates for the job opening. The tension between the exigence and the constraints is the basis of this simulation. Rhetorical discourse is generated by the "audience." This "Pine County" situation fits the general characteristics for rhetoric delineated in the same article.

1. Rhetorical discourse is called into existence by the situation.
2. Although rhetorical situations invite response, it does not invite just any response. It invites a fitting response, a response that fits the situation.
3. The situation must somehow prescribe the response which fits. A situation . . . dictates purpose . . . and style of the response.
4. The exigence and the complex of persons, objects, events, and relations which generate rhetorical discourse are located in reality (or abstracted from it), are observable, historic facts in the real world, and are available for scrutiny by the observer or critic who attends them.
5. Rhetorical situations exhibit structures which are simple or complex, and more or less organized.
6. Rhetorical situations come into existence and either mature and decay or mature and persist.[34]

Additional insight and new meanings are gained when "Pine County" is examined from the statements of Marie Hockmuth Nichols. She defines rhetoric as "being essentially a process whereby means are adapted to ends."[35] Nichols states the critical process should allow us to distinguish at least three aspects. The first is identification of what is to be evaluated. In the "Pine County" simulation, the task is to decide which candidate for the job opening is the only justifiable choice. The "identification" necessary is the criteria on which to base the

decision. The second aspect to be discerned is "recognition of what is to be evaluated as a cultural product of a particular time." In the simulation used, this aspect involves the understanding of the simulation as an abstraction of reality, and that reality as being culturally dependent. The success of this understanding would determine success of the simulation for the participants. Some players seem to have difficulty divorcing themselves from the simulation setting at the conclusion of the game, and therefore have trouble recognizing the process as distinct from the model. The third aspect of the critical process of rhetoric is "a judicial act of determining what is better or worse. In "Pine County" this involves a judgment about which candidate is justifiable based on criteria identified.

The "Pine County" simulation game should be able to communicate rhetorical skills since it qualifies as a potential rhetorical situation, according to the standards delineated by Lloyd Bitzer and Marie Hockmuth Nichols.

To analyze another simulation, "Red Tape," as a rhetorical device, consider Kenneth Burke's concepts of the pentad and structural tools of identification. These concepts bring about a unity of strategies or rhetorical devices. There are five elements in the pentad and they "must provide some answer to these five questions: what was done (act), when or where it was done (scene), who did it (agent), how he did it (agency), and why (purpose)."[36] In "Red Tape" the five elements are:

Act--the simulation game, "Red Tape"

Scene--the 110 class setting

Agent--the participants

Agency--involvement in abstracted systems

Purpose--rhetorical skills delineated as goals

Agency and purpose are drawn together in a means-end relationship. Each is treated in terms of the other; for example, involvement in abstracted systems is the means, agency, of obtaining understanding of rhetorical skills, purpose, the ends. There is an agency emphasis in "Red Tape."

Burke believed that an emphasis on agency signifies a pragmatic philosophy.

> In featuring the means, or agency, the pragmatic philosophy is dominant. Pragmatism is defined by Kant as "the means necessary to the attainment of happiness." John Dewey refers to pragmatist doctrine as Instrumentalism. In modern science, method or agency dominates all other terms of the human drama. Along with modern science and pragmatism, the technologically oriented line of action has appeared and is identified with terms such as "useful," "practical," and "servicable." William James not only asserts that pragmatism is "a method only," but he goes on to indicate that "consequence," "function," "what it is good for," and "the difference it will make to you and me" are pragmatic evaluations. However, pure pragmatism goes beyond James to transcend purpose, as in the applied sciences, when the method is built into the instrument itself. At this point, agency becomes the focus of the entire means-ends relationship.[37]

Substance, according to Burke, is the philosophical foundation of the message in the speech. The principle of substance is meaningful since all speeches must establish a substance that is the basis of the speech and key to the speaker's

attitudes. Focus on the agency element provides directional substance. "Directional substance . . . comes 'from a sense of free motion.' The feeling of movement provides a sense of motivation from within. . . . 'Doctrines that reduce mental states to materialistic terms treat motion as motive' and encourage 'sociological speculation in terms of tendencies or trends.'"[38] The "Red Tape" simulation is rhetorical and, according to Burke's analysis of substance, is directional in nature.

In short, the twin constructs of simulation and rhetoric have sufficient relationship that can be demonstrated in general. That they have a specific relationship as well is demonstrated by the data in the remainder of this chapter.

An Analysis of Some Specific Rhetorical Skills

Simulation procedures abstract from reality relationships or processes. In the abstracted setting, different circumstances exist, so we are able to consider the relationships from different but related perspectives. Greater grasp of the subject areas result from greater understandings derived from different perspectives. Rhetorical skills are managed more easily when the dynamics of the situation are comprehended. Simulation exercises also provide the opportunity for experience and practice of rhetorical skills.

The rhetorical concepts of cooperation and competition exist in many simulation games. Opportunity for involvement

and experience with both of these concepts is available to one participating in simulation. Simulation games are often based on one or the other of these principles.

Rhetorical skill in decision-making is also simulation-learned. Participants learn to weigh the consequences of one response against the other. Several studies show that simulation gaming gives students definite improvement in problem-solving and decision-making skills.[39]

Another rhetorical skill involved in simulation is allocation of resources. "The basic idea is that, at any one time within any one system a constant amount of resources are conserved--more in one place means less in another. . . . The core issue is that of allocating limited resources to maximize one's objectives."[40] Probability and mathematical game theory involving logical analysis of decision-making under conditions of incomplete information or uncertainty, are a further developmental skill of rhetoric exemplified. Audience analysis, and anticipatory refutation employ this decision-making concept of allocation of resources to best reach one's objective.

Values-acknowledgment is a rhetorical skill obtained as participants in simulation interact with other participants and with the game itself. Experience relating with other persons in a game situation enables one to discern individual differences in values.

Goal setting and advance planning are rhetorical abilities to which the simulation participator is exposed, comes

to appreciate, and assimilates. In highly structured game simulations, use of these skills enables learning; in loosely structured simulations, goal-setting and planning seem imperative.

The knowledge of parallel processes, grasp of the concepts of perspective, and some values acknowledgment allow the simulation games the advantage of negotiation-skill development. Describing simultaneous interactions, as in parallel process, "requires considerable abstraction, memorization, . . . and retrieval of significant data at the right moment."[41] These skills are basic and essential to the rhetorician.

These brief examples establish that rhetorical components appear inherent in the simulation experience. Through the use of simulation procedures, rhetorical skills can be examined, transmitted, and practiced. The possibilities of abstracting from reality in order to more completely master the concepts, regardless of time, risks, or other pressures, offers a unique learning setting for interpersonal communication.

Summary

Simulation games have been considered as rhetorical situations in light of explanations of rhetoric by four prominent rhetoricians. Simulation correlates well with rhetoric and simulation games have much in common with rhetorical situations, as defined by Donald Bryant, Lloyd Bitzer, Marie Hochmuth Nichols, and Kenneth Burke. Many simulation situations seem,

in fact, to be rhetorical. Rhetorical processes of evaluation are applicable to numerous simulation games. Two simulation games have provided in this chapter specific examples of simulation as rhetorical situations. Simulation games, as rhetorical situations, can be assumed to be an effective medium for teaching of rhetorical skills in the classroom.

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[33]Lloyd F. Bitzer, "The Rhetorical Situation," Philosophy and Rhetoric, I (New York: Grove Press, 1968), pp. 1-14.

[34]Bitzer, pp. 1-14.

[35]Marie Hockmuth Nichols, "The Criticism of Rhetoric: History and Criticism of American Public Address, Vol. III (New York: 1955), pp. 1-23.

[36]Kenneth Burke, A Grammar of Motives (Englewood Cliffs, New Jersey: Prentice-Hall, 1945), p. x. Italics Burke's.

[37]Bernard L. Brock, "Rhetorical Criticism: A Burkeian Approach," Methods of Rhetorical Criticism: A Twentieth-Century Perspective, ed. Robert S. Scott and Bernard L. Brock (New York: Harper & Row, 1972), p. 322.

[38]Brock, p. 324.

[39]Paul A. Twelker, "Simulation and Media," Educational Aspects of Simulation, ed. P. J. Tansey (London: McGraw-Hill, 1971), p. 159.

[40]Abt, Serious Games, p. 19.

[41]Abt, Serious Games, p. 18.

CHAPTER III

THE APPLICABILITY OF SIMULATION TO SOME SELECT RHETORICAL PRINCIPLES

There are numerous rhetorical principles to which simulation could be applied. Principles selected by this investigation are in no way intended to be inclusive but only representative of the infinite variety and interdisciplinary nature of rhetoric. Rhetorical principles that can be transmitted through simulation include: cooperation/competition, decision-making, reasoning, recall, perception, negotiation, and goal setting.

Simulations, systems, or concepts abstracted from one medium to another are usually not simplistic, and therefore more than one rhetorical principle or skill development is normally involved in each game.

Cooperation/Competition

Competitive processes are part of everyday life. The tension of comfortably establishing oneself on the competition-cooperative continuum is a useful device for generating student motivation. Whether this principle is applied between individuals or between teams, it seems to elicit intensity of effort and application to task.

Simulations which have in common the element of competition and/or cooperation are "Yellow Brick Road," "New Truck," "Seal-Hunting," "Simsoc," "Ralph," "Disunia," "Empire," "Red Tape," "Starpower," "Lifeboat," "Prisoner's Dilemma," "Crisis," "BMG," "Diplomacy," and "Disaster."[1]

For purposes of illustration, "Prisoner's Dilemma" is explained. This game simulates an old technique used in interrogating prisoners. The prisoners suspected of working together are separated and told their partner has confessed. If they both confess, they will get off easier. The dilemma is that they may confess when they should not, that is, when the partner has not; or that they may fail to confess when they really should, when the partner has truly confessed. Prisoner A has two choices, to confess or not to confess; prisoner B also has two choices, confession or nonconfession. They either trust each other and do not confess, thereby cooperating with each other; or they confess, competing with each other. This game obviously provides opportunities for participants to experience the relationship and the ramifications of competition and cooperation. The prisoners either both win or both lose; A wins at the expense of B, or vice versa.

Decision-Making

In decision-making, the participators evaluate the alternatives. The participant "experiences some of the agonies of indecision during the ". . . process and once he has committed

his resources, he then undergoes the experience of determining if his decision was acceptable in the given conditions."[2]

"In-Basket," "Ralph," "Blind," "Pine County," "Metropolis," "Orbits," "Insite," "El Sombrero Cafe," "Diplomacy," "Lifeboat," "New Truck," "Joe Doodlebug," "Crisis," and "Prisoner's Dilemma" are among simulations which provide experimentation with alternative strategies. "Group decisions are more likely to be effective if they result from discussions that draw upon information known by each individual, information shared by combinations of individuals, and information that is common to all group members."[3]

The "New Truck" exercise will illustrate this point. In the "New Truck" simulation, group members are told there is to be one replacement truck to be purchased. Each group member is given information about a truck he currently drives. All of the trucks would warrant replacement. Reasons are provided by which each group member might justify being the one to receive the newer truck. There is only one role with status from job rank, the foreman. He has decided to let the group make the decision about who will get the new truck. The participants' task is to decide who shall receive the new truck from their roles as truck drivers. Decision-making is the focus of this simulation.

Reasoning

The rhetorical principle involving reasoning basically considers alternatives and consequences in one response against

those in another response. Simulation methods of transmitting the requisite details of the reasoning process are also in abundance. Additional simulation activities that could potentially produce the same impact include "Joe Doodlebug," "Configurations," "Consumer," "Crisiscom," "Blocks," "Dangerous-Parallel," "Democracy," "Simsoc," "Yellow Brick Road," "Blind," and "Market."

"Joe Doodlebug" involves reasoning skills. The participants' task is to move the "bug" on the game board grid from an original location to the food supply. The grid is of equal squares. When the "bug" is moved, there must be four jumps in one direction before changing directions. Reasoning skills help players figure out how to reach the goal. Assumptions must be considered carefully; many persons assume that because the "bug" is facing north originally, it must be moved in that direction. Consideration of a sideward move is usually not tried initially, although it is the easiest means of reaching the food goal.

Recall

Attention to detail also involves simulation and rhetorical implications. The ability to remember previous transactions is a valuable asset in many rhetorical situations. Games focusing on this concept include "Blind," "Shoe Store," "Diplomacy," "Red Tape," "Capstone," "Barbara's Barn," "Simsoc," and "Pine County."

In the game entitled "Blind," five-member teams are to move from one section of the class to another through a maze constructed by placing masking tape on the floor. The leader of both teams starts feeling his way through the maze toward its completion. When the leader has been successful, he then verbalizes as many details of the maze-construction as he can recall in order to bring his team members to the goal before the competition completes their task. Suggestions such as "watch for a right-angled left hand turn just past the teacher's desk" illustrates some of the attention to detail which will enable the successful team leader in his task.

Perception

"Understanding the processes of perception . . . is one of the keys to understanding communication. . . . The basic problems may be stated something like this: Nearly all of us go through our lives firmly convinced that we see, hear, and touch that which is truly there to be seen, heard, or felt. . . . We cannot get outside of ourselves to check on the accuracy of our perceptions to see if we are really seeing what is actually there."[4] Each of us experiences reality in slightly different ways.

"Simsoc," "Yellow Brick Road," "Dangerous-Parallel," "Market," "Ralph," "Prisoner's Dilemma," "Adventuring," "Barbara's Barn," "Empire," "Blocks," "Crisis," "Raid," "Manchester," and "Neighborhood" all employ perception skills.

The simulation "Ralph" allows the concept of perception to be experienced. "Ralph" is represented by a voice on a tape recording. He tells participants that radiation contamination in the atmosphere has continued to build up until it is now deemed dangerous for humans. The participants are told to follow appointed guides to protected environments. He then gives them a series of tasks, such as deciding to accept or reject a possibly contaminated survivor or to consider establishment of rules or regulations for the new society of which they have become a part. Perception is gained from responses of the various group members and especially when one becomes aware of the assumptions, behaviors, trust, or lack of it displayed by oneself. Computer cards are available all during the simulation "Ralph" to check one's perception of reality with Ralph's perceptions.

Negotiation

During the course of many types of simulations the participants encounter situations which require them to bargain with their competitors, or to persuade those with whom they are maintaining relationships.[5] Real-life situations calling for these rhetorical skills include maintenance of relationships between labor and management, government, and even lovers. Games which develop skill in this area are "Lifeboat," "Pine County," "Job Interview," "Yellow Brick Road," "New Truck," "Crisis," "Diplomacy," "Simsoc," "Ralph," and "Portrait."

"Diplomacy" abstracts the negotiation skill of international relationships into a simulated setting. Participants practice and develop diplomatic relationships without the possible risks involved in negotiating on a complex international level. In "Diplomacy," players must bargain for economic units to keep their country in existence and political units to have some representation in future decision-making. Negotiation skills are learned through actual practice in negotiations and through firsthand observation of others using these skills. At stake in the negotiation during the game is the existence and welfare of simulated countries. One quickly perceives the importance of this rhetorical skill in our complex world.

Goal-Setting

"Simulations are . . . dramatizations which offer a bridge between theory and practice."[6] This bridge allows participants to set realistic goals and plan toward their implementation in real situations since relevance and applicability can equally be determined in the simulation. Selection of criteria for determination of success or failure of the goal can be observed in simulation situations. "Simsoc," "Yellow Brick Road," a revised version of "Monopoly," "Disaster," "Lifeboat," "Empire," "Crisis," "Democracy," "Legislature," "Plans," and "Starpower" employ rhetorical skills of planning and goal-setting.

In the simulation game "Yellow Brick Road," the participants must play toward some goal. The most successful players are those who are able to define their goal. Players are forced to weigh and to consider ecological, economic, and political concerns. This simulation focuses on "countries" or groups of players who must goal-set for their area and then put those goals into action as they deal with other "countries." The practical aspects of goal setting such as measurability and attainability all get consideration during the game.

Summary

Specific rhetorical skills are transmitted by simulation. Simulations allow participants the experience of making life-like decisions in an environment which is nonpunitive and structured for learning. Participants are therefore enabled to develop rhetorical skills, such as cooperation/competition, decision-making, reasoning, recall, perception, negotiation, and goal-setting.

NOTES

[1]These games and others can be found in: J. William Pfeiffer and John E. Jones, A Handbook of Structured Experiences for Human Relations Training I-V (Iowa City, Iowa: University Associates Press, 1973), pp. 1-133; William A. Nesbitt, Simulation Games for the Social Studies Classroom (New York: A Foreign Policy Association School Services Publication for Teachers, 1968), pp. 1-144; and Dennis M. Adams, Simulation Games: An Approach to Learning (Worthington, Ohio: Charles A. Jones Publishing Company, 1973), pp. 1-120.

[2]Dale M. Garvey, "Simulation: A Catalogue of Judgements, Findings, and Hunches," Educational Aspects of Simulation, ed. P. J. Tansey (London: McGraw-Hill, 1971), p. 219.

[3]Pfeiffer, IV, p. 77.

[4]Communicating Interpersonally: A Reader, ed. R. Wayne Pace, Brent D. Peterson, and Terrence R. Radcliffe (Columbus, Ohio: Charles E. Merrill Publishing Company, 1973), p. 2.

[5]Garvey, p. 220.

[6]John L. Taylor and Rex Walford, Simulation in the Classroom (Middlesex, England: Penguin Books Ltd., 1972), p. 54.

CHAPTER IV

DESCRIPTIVE CASE STUDIES OF TWO SIMULATIONS

Implementing the concepts previously developed in the theory and general practice chapters, this investigator involved a freshman-level interpersonal communication course entitled Business and Professional Speaking. Persons enrolled in this course are usually oriented toward traditional approaches to learning. The students have no inclination to prefer innovation in a learning environment which for many is already threatening because of the emphasis on verbal and vocal skills. This course is not designed for speech, communication or drama students, but for nonmajors, decreasing the likelihood of related rhetorical learnings from other classes. As a freshman level course, its emphasis is on basic skills and not a mastery of previous skills. The students are fairly representative of a cross-sampling of various areas of interest, although many are selecting majors within the broad field of business.

This specific Speech 110 class to be studied in this investigation met daily for ninety minutes during the summer, 1975. The summer sessions customarily have students with a larger range of ages and experiences, deemed advantageous for this investigation since application of simulation to rhetorical learnings should be broad-based.

Business and Professional Speaking is primarily a required course for business majors. As a result, the course is not chosen by those with a natural interest or ego-involvement in verbal and vocal skills.

The subjects in the class range in age from 19 years to 36 years. The range of 17 years has a median age of 22.8 years and a mean of 27.5 years. There are 18 males and 9 females. Seventeen were born within the state of Texas; 10 out-of-state. Fourteen of the subjects commute to school while 13 reside in Denton. In terms of classification, there are 14 seniors, 6 juniors, 6 sophomores, and 1 freshman. Twenty-three of the persons name business as their major, the areas ranging from secretarial administration to real estate to finance-accounting. Named by the other participants as majors are political science, therapeutic science, biology, and dental hygiene.

In an effort to establish the heterogeneous quality of the class grouping, students were questioned about favorite television programs for each night of the week as well as for overall preference, providing one index of role-playing perspective. Using TV Guide classification of crime, drama, variety, news, science, sports, et cetera to categorize programs, no one type of program is found to be preferred. As a further consideration, preferences in male and female singers, musical groups, motion pictures, cars, foreign country to visit, choice of state in which to reside, and television commercials show no group affinity. Three teachers of Speech

110 classes evaluate this class from observation as "typical." None of these data is meant to be an absolute classification, but merely serve as a set of guidelines which give additional insight about the class when they were observed as participants in the simulation procedures.

The class had been exposed to a wide variety of planning procedures; they saw a film on perception, they were an audience to a Reader's Theater presentation on Transactional Analysis, they engaged in the "Block Game" which teaches the awareness of abstract concepts using concrete objects, and they broke up into small groups to return to a large group in the "Lifeboat" exercise. In short, their involvement in later specific simulation procedures is not contaminated by the "newness" of the concept.

"Red Tape": A Case Study

In order to obtain even further knowledge of simulation, an original game, "Red Tape," was created. The "Red Tape" simulation was designed to teach the concepts involved in "process speaking." Consultation with the instructor of the class revealed three specific elements of this assignment that could be taught: (1) relationship of the various stages in the process to each other; (2) organization of the various stages within the process; and (3) attention to detail or the ability to recall the details of the process.

In "Red Tape," individual teams compete to gain the most signatures from a varying number of classmates who are given the name of "facilitators." For purposes of illustration, the game would follow this format if three facilitators were used.

1. Two five-member teams are designated.

2. Each of the three facilitators is given a slip of paper with a logical progression of numbers, e.g.: 1, 3, 5, 7, 9; 1, 2, 3, 4, 5; 1, 2, 4, 8, 16.

3. Everyone is informed that the number "1" is the starting place for all the numbered progressions.

4. The task of the team members is to mutually decide what the next number should be.

5. Team A then quizzes the second facilitator to see if that person's next number in the progression is "2," assuming the progression is 1, 2, 3, 4, 5.

6. If that number is correct, the facilitator will sign the response sheet.

7. Team B then quizzes the second facilitator to see if that person's next number is, for example, "3"--assuming the progression is 1, 3, 5, 7, 9.

8. If that response is incorrect, no signature is obtained.

9. The game then continues with each team attempting to ascertain the progression of all three facilitators so that when it comes time to ask for the next number, they know they will receive a signature.

The reasoning process is such that the faster the team members can figure out the progression, the more signatures will be obtained, and therefore provide the winning margin.

Not dissimilar from the perfecting of other teaching devices, simulation procedures also benefit from modification and adaptation to specific audiences. In the case of "Red Tape," the game was played in a training session of a Management Skills Development class. In that setting it seemed to clarify the understanding of process and its relationship to "systems analysis." The role of the rhetorical concepts was apparent for these participants. "Red Tape" was therefore not modified before use in the Business and Professional Speaking section.

The "Red Tape" simulation proved meaningful for some of the class members. One student reported understanding the concept of process "in an entirely new light." Simulation procedures allowed the experience of being involved in and understanding process "rather than just being lectured to by a professor." A perceptive undergraduate felt that teaching rhetoric with simulation games "was interesting as part of an experiment to prove simulation valid." One of the students interviewed individually several days after the experience was able to relate the rhetorical principles to other discussion situations in her experience. She commented that she "learned that we all had different inputs to contribute . . . and in trying to reach a goal it was necessary to consider

alternatives to the present system used and . . . to view things from other's perspectives."[1]

Different but related learnings were commented on in another individual interview. The comments focused on acquired rhetorical principles such as competition and the uses of both emotion and logic in persuasive discussions. He "picked his strongest opposition to talk with." During the prolonged dialogue he discovered that logic "was more helpful with some while emotion held more persuasion for others."[2]

Validating these conclusions was a graduate student, a public school teacher with fifteen years of experience in various grade levels. She viewed the simulation as "extremely valuable." It, for her, "emphasizes logical thinking, organization, remembering detail and interaction between participants," the interaction aspect being particularly "vital in the classroom . . . since /it is/ vital in our society. This does not lead to a quiet classroom but a quiet classroom doesn't mean learning is occurring. Noisy classrooms are often indicative of real learning experiences. If it's the right kind of noise /for learning/ you can tell." This teacher-observer felt the strongest value in the "Red Tape" simulation is the concept of "recognition of ongoing patterns in a system other than the original system." The only modification she mentioned involves a stronger "labeling of concepts" in the discussion following the simulation.[3]

On the other hand, some difficulties should be reported. The simulation was evaluated as having produced only limited success by the two graduate teaching fellows observing it. Both felt that the explanations to the class should be clearer and room arrangement could be different. One also seemed to feel that there was a tendency for the game facilitator to be nondirective in discussion and that discussion needs stronger leadership. These observers felt that the participants "are not very interested or involved in the simulation."[4]

To preclude these observations, future use of the procedure would benefit by some modification. Physical arrangement of the persons designated as "facilitators" could be different and more organized for visual effect. Teams could operate with a strict time limit for making their numerical guesses. This would increase the competition between teams. The basic framework of the game should be retained and elements to heighten the sense of excitement and interest would be emphasized.

"Pine County": A Case Study

"Pine County" was introduced into a Communication 420 class, Methods of Teaching Speech and Drama. The experience was evaluated as relatively successful by the instructor who remained in the classroom as an observer. The students got involved in and seemed to experience the discussion principles which were the objectives of this particular simulation. Class discussion following the game emphasized that the participants understood the rhetorical concepts that emerged.

The format for "Pine County" is:

1. The facilitator explains to the participants that they will be doing an exercise in decision-making. He should not, however, suggest in his introduction any clue or key to the final decision.

2. The facilitator forms groups of five participants by any convenient and appropriate method.

3. The facilitator explains that each group's task is to select a director for the Family Counseling Unit of the Community Action Agency. He indicates that there is only one justifiable solution.

4. The facilitator then distributes Candidate Summary Sheets, Briefing Sheets, and individual Data Sheets to each participant.

5. The groups begin the deciding process when the facilitator gives the signal. Groups are given the expectation that they will be able to reach a solution within thirty minutes.

6. When all groups have made a decision, the facilitator initiates a discussion.

7. Pine County Solution Sheets are distributed and discussed.[5]

Observers for "Pine County" were two different teaching fellows and another teacher. These persons agree in their evaluative comments that simulation games, "Pine County" in particular, are effective teaching devices in communication rhetorical principles. Both teaching fellows employ and plan

to continue this method in their own classrooms. These two persons seemed to feel that part of the value is in the variety of the approach and part in the involvement of the students. Both remarked on the facilitator's approach in the follow-up discussion. It was viewed as "sensitive and responsive, without being leading . . . or defensive." The third observer commented that more might need to be said in many cases about the necessity of "leaving the game behind when you finish the experience," that is, "to divorce yourself from the simulation completely in order to look at the process. Some of the participants have a tendency to really get involved and need to realize when it's finished, it's over." These observers concur that the experience of "Pine County" was one with positive rhetorical learning for the students.

Two participants in both simulations and regular members of the class were interviewed to get the students' perspective on the experience. These two were chosen by the course instructor because of their skill in verbalizing their observations. Both enjoyed especially the second simulation, "Pine County." It was "something I could really get into," one reported. This participant remembered that he "started by raising my hand to talk and ended by keeping control /in small group discussion/ of who talked. . . . I spoke mainly with those persons I viewed as influence leaders. . . . I learned . . . the best way to state feelings and facts . . . more about the role of logic and emotion, . . . and so much more." He related the

rhetorical concepts to his feelings about morality, honesty, and idealism in "areas like government."[6]

The other participator interviewed began, "everyone in class had different learnings and it was . . . interesting in discussion to find out what they had learned." She related the rhetorical principle of recall to an incident outside of class holding special humorous meaning for her. She reportedly felt "ready to play again." When asked for the strongest learning, she mentioned "the value of learning to view things from another's perspective."[7]

Both persons spoke of the newness of the simulation experience and voiced with little reservation appreciation for the simulation procedure as a teaching device. Their only reservations dealt with newness and nontraditional aspects of simulation games.

Certain comments by other class members suggested a few modifications would appear appropriate for the freshman-level testing class. "Only one correct solution" was reworded to read "only one justifiable solution." Names of candidates were changed from Brown, White, Red, Green, Black, and Gray to Jones, Smith, Brown, Johnson, White, and Gray to make the situation more believable. School names were also replaced in order to add credibility. The Briefing Sheet, stating all regulations for the simulation, was rewritten and shortened. As a result, even more modifications would be made when considering further use of this simulation. The Briefing Sheet was not found to be

helpful and may have just been a distraction. The situation may have been even more realistic if a summary of criteria for the job opening to be filled was in front of the decision-makers. Use of observers would be discouraged, for several participants expressed feelings of inhibition about "being watched." Students did comment that the exercises helped them "understand the message" and they "could see its value."

Some of the previous comments were selected to indicate general reactions. That they were typical can be documented by the course evaluation forms filled out by the students at the end of the semester, almost a month after the simulations. Enough consistency in syntax existed to validate both the benefits and to suggest changes mentioned previously for both "Red Tape" and "Pine County."

Summary

The two case studies mentioned above do not provide empirical data that simulation procedures are without question utilitarian. Conversely, enough positive feedback was obtained from participants and observers alike to indicate that with modification both of these simulations could have become more and more beneficial, just as other forms of teaching become more effective as they are developed.

NOTES

[1]Connie Wood, personal interview, North Texas State University, July 1, 1975.

[2]Tony Liles, personal interview, North Texas State University, July 1, 1975.

[3]Mary Hunter, personal interview, North Texas State University, July 3, 1975.

[4]Sara Hurdis, personal interview, North Texas State University, June 23, 1975; also Alatia Harris, personal interview, North Texas State University, June 23, 1975.

[5]J. William Pfeiffer and John E. Jones, A Handbook of Structured Experiences for Human Relations Training, IV (Iowa City, Iowa: University Associates Press, 1973), p. 76.

[6]Ken Sledge, personal interview, North Texas State University, June 30, 1975.

[7]Connie Wood, personal interview.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

This investigation examined the use of simulation in the teaching of rhetorical skills. As delineated by prominent rhetoricians, rhetorical situations have function and definitions which are equally applicable to simulation procedures. In many cases simulation games become rhetorical situations.

Interpersonal communication classroom experience demonstrated the values of simulation as an effective teaching device for rhetorical concepts and skills.

> The kind of "knowing" which comes from the recognition of patterns and thus of the subunits of those patterns is called distal knowledge. We confront a collection of fragments--bits of punctiform data, each of which is uninterpretable--and suddenly we see the entire pattern or context. Common expressions used to describe this experience include "insight," "revelation," "seeing how it all fits together," and "having it all suddenly make sense." They all express the recognition that when a context or pattern is grasped, each part of the pattern is also more clearly apprehended. In a sense, we may say that the whole is greater than the sum of its parts.[1]

The sum of knowledge learned from simulation experiences is greater than the sum of knowledge learned from separate concepts. When simulation is used as a teaching device for rhetorical knowledge and skills, the student grasps more learnings than just knowledge of separate rhetorical concepts.

Recommendations for Future Use

Simulation games are continually being developed, played, modified and evaluated.[2] The designer in these experiences is also involved deeply in learning processes. Therefore, learning by designing simulations is recommended.

The ongoing abstraction of systems into new mediums to continually gain new perspective is necessary for a society that is constantly becoming more complex.

The flexibility of simulation in situations of increasing complexity needs to be explored. The processes of abstraction, application of concepts from one set of circumstances to another set of circumstances, and rhetorical skills gained from simulation seem to be elements of flexibility. Continued experience in simulation games is recommended for flexibility of persons living in our complex society.

Motivation is a psychological principle not fully explored as yet. Participants in simulation seem to show great motivation. Simulation situations and the possible correlations to motivation are recommended for future study.

Communication classes using simulation games need to be compared with communication classes using more traditional methods. Objective measures, rather than subjective, need to be applied to provide empirical data to consider along with the theoretical data from this investigation. The two case studies only hint at the potential in this area.

This thesis suggests application to some rhetorical skills although in no way exhausting the possibilities. Simulation should also be considered as a teaching device with the additional rhetorical principles of anticipatory refutation, persuasion, clarification, dissonance, credibility, and mood.

"Barbara's Barn" is just one simulation game that might be used to clarify the concept of mood. In this simulation, the participants use the stereotype animal noises to express various moods to their group members, vocally but not verbally. Moods are rather difficult to label but seem to be easily communicated nonverbally to one's audience.

Finally, a course of study focusing on rhetorical skills taught with simulation procedures would add insight in the interpersonal communication classrooms. Such a course could be interdisciplinary in nature as mathematicians, social scientists, and semantists as well as communication theorists could apply learnings to their basic field of interest. A course with this emphasis is highly recommended.

NOTES

[1]John R. Raser, "What and Why Is a Simulation," Simsoc: Simulated Society, participant's manual, ed. William A. Gamson (New York: The Free Press, 1972), p. 44.

[2]Games are listed in the following books: J. William Pfeiffer and John E. Jones, A Handbook of Structured Experiences for Human Relations Training I-V (Iowa City, Iowa: University Associates Press, 1973), pp. 1-133; William A. Nesbitt, Simulation Games for the Social Studies Classroom (New York: A Foreign Policy Association School Services Publication for Teachers, 1968), pp. 1-144; Dennis M. Adams, Simulation Games: An Approach to Learning (Worthington, Ohio: Charles A. Jones Publishing Company, 1973), pp. 1-120; and Dale M. Garvey, "Simulation: A Catalogue of Judgements, Findings, and Hunches," Educational Aspects of Simulation, ed. P. J. Tansey (London: McGraw-Hill, 1971), p. 219.

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