SYSTEMATIC ASSESSMENT
OF COMMUNICATION
GAMES AND SIMULATIONS:
AN APPLIED FRAMEWORK

Linda C. Lederman
and Brent D. Ruben

While communication games and simulations have been periodically popular in
communication education,¹ it is only recently that researchers have begun to concern
themselves with some sort of systematic assessment and analysis of their use. This
article reviews a framework advanced by Ruben and Lederman² for the assessment
of simulations and games and expands it as it applies specifically to communication
education.

THE FRAMEWORK DESCRIBED

Considered as a methodology, all games and simulations have a set of structural/
functional characteristics and three evaluation criteria. The characteristics are rules,
roles, interactions, goals, and outcome criteria. The criteria for evaluation are
validity, reliability, and utility.² These elements provide the basis for systematic
assessment which must be applied to the determination of whether any gaming
activity is a viable methodology for teaching communication concepts.

Structural and functional characteristics

Regardless of cosmetic and topical differences which may exist among various
simulations and games, there are common structural and functional components
characteristic of all experience-based methods. Activities which can be classified as
games or simulations have (1) participants cast in roles; (2) interactions between
those roles; (3) rules governing the interactions; (4) goals with respect to which
interactions occur; and (5) criteria for determining the attainment of the goals and
the termination of the activity.³

Roles. In any game or simulation individual participants assume roles which are
the identities which are necessary for participation in the activity. The origins and
precise nature of these role definitions depend upon the design and purpose of the
activity. The roles in What's news? for example, are editors, reporters, sources, and
broadcasters.⁴

Interactions. The operation of all games and simulations also depends upon the
interrelationships and interaction between participants and roles. The manner in
which these relationships originate and develop varies from one game or simulation
to the next, as do the methods, procedures, and channels available for transactions
between players. When playing High Fly Fireworks, for example, participants cast
in managerial roles interact with one another in prescribed ways.⁵

Rules. Interactions between participants in roles are governed by a series of rules
or guidelines. Typically, rules are specified by the designer and presented to the
player as "instructions for play." In the listening dyads game, for example,
instructions about who speaks to whom and where, form the rules for play. Naturally, the number and specificity of the rules governing the interactions vary substantially from one simulation to the next. The rules guide and shape the interactions and outcomes of play.

**Goals.** Goals, too, are characteristic of all simulations and games. As with roles, interactions, and rules, the goals of simulations vary from activity to activity. Frequently the goal is stated in the instructions accompanying the activity in the form of the "objective" of the activity. In the classic One-Way/Two-Way communication game, for example, the objective or goal is stated as, "reproducing the given diagram with/without feedback."  

**Outcome Criteria.** Finally, all games and simulations need a way of ending and a means for arriving at that point. These are referred to as outcome criteria. When the goals of the game or simulation have been reached using certain criteria, it signals the end of the activity. In One-Way/Two-Way communication, for instance, the game ends when the speaker feels satisfied that he or she has provided enough information to insure accurate reproduction of the diagram. Some games and simulations, for example, Metro-Apex, rely heavily upon the use of fixed and prescribed criteria for determining when the goals have been met and the activity is to terminate.

**Summary and Application to Communication Games and Simulations.** Communication games and simulations must possess all of these criterial structural/functional characteristics—roles, interactions, rules, goals and outcomes. Games designed, for example, to introduce students to concepts such as linear vs. interactional communication models, need to provide the players with the roles they are to play, the nature of the interaction between them, the rules for the interaction between them, as well as the goals and outcomes. It is only when these are clearly specified that the game or simulation has the basic components necessary for it to be an integrated activity and to distinguish it from some other sort of interactive exercise such as a role play or behavioral rehearsal. It is these criteria which allow distinctions to be made between games or simulations and other activities, thereby allowing for assessment criteria, rather than acceptance or rejection of the activity on some intuitive basis.

**Criteria for Assessment.** The second step in the evaluation of all games and simulations is an assessment of their validity, reliability, and utility. These three criteria will be discussed in the sections that follow.

**Face Validity: Real World Counterparts.** The first criterion for assessing instructional games and simulations is validity. Validity can be divided into face and construct components. Face validity demands that games and simulations must model the real world or some aspect of it in a way which is apparent and comprehensible to the player/learner. Face validity requires that the analogy between the classroom activity and that which it replicates in the real world be apparent, and perceived as "real" by the player/learner.

To design and implement an activity with face validity requires a consideration of the learner and his or her capacity to comprehend that analogy. In an interpersonal communication course, for instance, values clarification games which require "life-death" choices (e.g. who gets the last ration of food or who remains in the lifeboat) are clearly of questionable face validity for the preponderance of the student body. Even where such choices have some remote connection with the 18–21 year old's reality or sense of reality, the inferential leaps often required of players raise some questions about satisfaction of the face validity criterion. At best such exercises have limited and highly speculative usefulness in their ability to force players to come
to terms with their actual behaviors, skills, and competencies. In contrast, consider values-clarification games in which choices are related to lending one's notes or helping someone study for an exam.

Assessment of the extent to which a given communication game or simulation meets the criterion of face validity therefore requires: (1) a clear articulation of the story-line of the activity and its characteristics, (2) an assessment of the real world experiences and perceptions of the player/learner who will be engaging in the activity, and (3) a high level of correspondence between (1) and (2), and with the player's feelings of personal relevance and meaning for the activity.

Construct Validity: Correspondence of Concepts. The second component of the validity criterion is construct validity. Construct validity refers to the capacity for the simulations and games to introduce the learner to the intended skills and/or concepts of a given course.\(^6\) Assessment of any instructional game or simulation consists initially of a determination of the skills and/or concepts to be taught; and, secondly, of the match between them and the actual design of the activity. In the case of a communication game or simulation, analysis begins with the identification of the communication concepts and skills to be taught, and the match between them and an instructional simulation or game.

In communication education as in other disciplines there may be several views of fundamental processes and phenomena of interest in the field. Classicists, for instance, trace their view of communication and the phenomena of significance to ancient times and the writings of Aristotle, Isocrates, Cicero, and other significant thinkers, who viewed communication in terms of the five canons of oratory. In this century, however, the early perspective has been expanded substantially through conceptualizations of individuals such as Newcomb, Schramm, Lasswell, Lazarsfeld, Shannon and Weaver, Berlo, Westley and MacLean, Thayer, Watzlawick, and others.

Thus, in contemporary times, depending upon one's training or perspective, communication can be viewed from a classical-rhetorical, behavioral, humanistic, or systemic perspective (among others). Though certain basic phenomena are common to all these approaches (e.g., messages, people vis-a-vis those messages, the codes and channels which make possible the creation and exchange of messages associated with each of these elements), emphasis varies from framework to framework. In the classical rhetorical approach, for instance, more emphasis is placed on the speaker and message construction than in the more recent approaches in which the receiver and the interpretive process are of primary concern. In terms of construct validity the critical key is the match between a particular perspective on communication and the communication game or simulation created for the teaching of those phenomena.

Thus, the criterion of construct validity is satisfied when the rules, interactions, goals and outcome criteria of the game or simulation have one-to-one counterparts in the skills, concepts, and theoretical underpinnings that the course is designed to impart.

The concepts and competencies with which a student ought to emerge from a course in communication, can be analyzed on two levels. First, on a generic level are those concepts, skills and competencies that are inherent in the study of any communication enterprise: messages, behaviors, and media. Second, on a content specific level there are those skills that are unique to a specific communication enterprise with which a particular course is concerned. Therefore the creation and
use of communication games and simulations for courses in communication, necessitates the isolation and definition of the particular generic concepts and skills that the course is designed to impart, the paradigm in which they operate, and the selection and pairing of games and simulations that will be valid replicas of those phenomena. Assessment of the extent to which a given game or simulation meets the criterion of construct validity thus requires (1) an articulation of the framework of the communication content, competencies, and skills, generic-content-specific, and paradigm-bound, (2) a specification of the roles, interactions, rules, goals, and criteria of the given communication game and simulation, and (3) correspondence between (1) and (2). Activities which meet these tests satisfy the criterion of construct validity.

Reliability: Process and Product. The second criterion for assessing communication simulations and games is reliability. Reliability refers to the replicability of the game or simulation, including the predictability of its outcomes. Determining whether the criterion of reliability has been met necessitates differentiating externally-parametered and internally-parametered games and simulations. Externally parametered games and simulations are those activities which are designed/used with predetermined outcomes. Internally parametered games and simulations are those in which the learning which is to occur is not specified or wholly predetermined by the designer or instructor, but may depend almost entirely upon the way in which the players arrive at their own decisions.10

In order for a communication game or simulation to have reliability, it must be played in ways that can be replicated and must result in outcomes that are part of the design, be they internally or externally parametered. Externally parametered games and simulations require product reliability. As indicated in Table 1, their satisfaction of the reliability criterion necessitates a predictable product. They are designed for mastery learning.11 On the other hand, as indicated in Table 1, internally parametered games and simulations are designed for what may be termed discovery learning. Specific outcomes are by definition indeterminant prior to participation in the activity. Such activities are reliable if the process of discovery is itself consistently replicated.

This distinction is critical, especially in light of the need to assess outcomes as part of one’s evaluation schema or criteria. Mastery learning refers to the mastery of some specific task or set of tasks, concept or set of concepts, which can be measured by the “right” way of doing (a task) or the “correct” understanding of some thing (a concept). Communication games and simulations that are mastery learning in design are ineffective then when they result in diversity, or undetermined outcomes. They can be evaluated on this basis with validity. On the other hand, multiple outcomes or diversity is a desired outcome of discovery learning, which refers to self-generated exploration, definition, and problem solving, with a variety of “right” or “wrong” answers. Thus outcomes need be predictable beforehand for externally parametered simulations and indeterminant until game play for internally parametered activities.

Utility: Cost-Benefit Analysis. The final criterion that communication games and simulation need satisfy is utility. Ideally the cost associated with the given enterprise should be less than the benefit associated with it.

Essentially the assessment of the cost/benefit component of evaluation is the determination of the time, energy, and monetary expenditures associated with the
TABLE 1

<table>
<thead>
<tr>
<th>Structural Components</th>
<th>External Parameters</th>
<th>Internal Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>assigned, rigid, low ambiguity, simple</td>
<td>emergent, flexible, high ambiguity, complex</td>
</tr>
<tr>
<td>Interaction</td>
<td>channels specified, patterns prescribed, low ambiguity, few channels available, predictable</td>
<td>channels emerge, patterns emerge, high ambiguity, multiple channels available, unpredictable</td>
</tr>
<tr>
<td>Rule</td>
<td>prescriptive, fixed, constant, low ambiguity, specified</td>
<td>prescriptive, flexible, changing, high ambiguity, emergent</td>
</tr>
<tr>
<td>Goal</td>
<td>imposed, uniform, single, clearly defined</td>
<td>emergent, individual, multiple, ambiguously defined</td>
</tr>
<tr>
<td>Criteria</td>
<td>predictable, uniform, singular, likely to involve “winning”, clearly defined, mastery learning</td>
<td>unpredictable, individual, multiple, unlikely to involve “winning”, ambiguously defined, discovery learning</td>
</tr>
</tbody>
</table>

communication game or simulation compared with its results (benefits). When analyzing the cost/benefit of the game or simulation an evaluation is made of the objectives it is designed to achieve and assessment of whether the same objectives could be accomplished better or less expensively (time, effort, money) in some other way. A student might, for example, learn about political speaking from engaging in a lengthy simulation, such as Interact II. The criterion of evaluation would only be satisfied if what the student was able to learn/master was greater or less costly than what he or she might be otherwise introduced to (e.g., lectures on communication systems, readings about them, real world observations).

The criterion of utility, then, requires (1) assessment of the reliability of the game or simulation as a repeatable experience with predictable mastery or discovery outcomes and other specifiable characteristics, (2) determination of the cost of providing the experience in comparison with its benefits to the player/learner, and (3) careful assessment of both of these compared to alternative learning strategies.

Summary and Application to Communication Games and Simulations: Communication games and simulations must meet the criteria of validity, reliability, and utility. These three tests taken together with the criterial characteristics of roles, rules, interactions, goals and outcomes are the framework within which one can assess any given communication simulation or game. Those activities which do not meet all of these criteria do not qualify as communication games or simulations.
THE FRAMEWORK APPLIED

In the first section of this article, we have presented a framework for the systematic assessment of simulations and games. The following section applies this framework by providing a model which incorporates the assessment of a simulation or game into a working decision-making model for communication instruction. (See Figure 1.)

Defining the Problem/Specifying Learning Objectives. The first step before selecting the method for providing any learning experience is to define the learning problem, i.e., exactly what it is that the learner is to learn. Hand in hand with this decision is the specification of the learning objectives, i.e., specification of what it is that the learner needs to have accomplished in order to establish that the intended learning has taken place. The second step involves the consideration of the

![Diagram of the process of simulation, design, use, evaluation](image-url)
constraints of the situation, such as the time, money, energy and resources available. Special context parameters must also be examined. For example, a class consisting of 400 students would provide a constraint in terms of teaching power that needs to be addressed before deciding on the best instructional methodology.

Selection of Instructional Methodology. The next step is the process of selecting a methodology. It begins with a review of the three possible teaching strategies: existent simulations, traditional instruction (lecture, discussion, film, etc.) and design of a simulation. Each of these needs to be considered vis-a-vis the specified learning objectives, the problem at hand, and the constraints. For example, certain kinds of cognitive learning lend themselves to lecture/discussion more than some others. Using discovery learning to teach definitions of specific communication concepts is a poor match between objective and methodology, whereas using discovery learning to determine ways in which students typically encode certain messages matches well with experience-based simulations. According to the model, selection of either existent simulations or traditional strategies leads to specification of the sequence of events followed by implementation, evaluation, and modification. This is a shorter circuit than the steps involved in designing a simulation.

Designing Simulations. Designing a communication simulation involves several steps which go beyond the other methodologies: construction of the model of reality, evaluation and specification of events, and design of manuals. These steps must take into account the systematic framework described in the earlier sections of this article, both structural/functional characteristics and criteria for assessment. Thereafter the steps include setting the activity into motion, evaluating its workings and modifying it based on those assessments just as one would when using another method of instruction.

The model described above has applicability for the selection and/or design and use of simulations and games for teaching various communication courses. Since these courses often incorporate both conceptual material (theory) and ways to behave (practice), simulations are one of the methods which may have value for teaching theory and practice. What the model suggests, however, is that the decision-making involved in selecting a simulation is part of a larger pedagogical question, i.e., identification of the learning to take place and selection of the most appropriate instructional methodology for providing learning experience. This article argues that simulations are a viable instructional methodology; but they are a methodology to be used where appropriate and should neither be viewed as a panacea nor dismissed out-of-hand.

NOTES


DEPARTMENT OF COMMUNICATION
The University of Oklahoma

Offering the Master of Arts and Doctor of Philosophy degrees with various emphases including:

COMMUNICATION EDUCATION
ORGANIZATIONAL COMMUNICATION
CROSS CULTURAL COMMUNICATION
LANGUAGE STUDY

Assistantships available for both master's and doctoral candidates.

For information write to:
Dr. Gustav W. Friedrich, Chairperson
Department of Communication
780 Van Vleet Oval, Room 331
Norman, Oklahoma 73019

An Affirmative Action/Equal Opportunity Employer