New Horizons in Simulation Game and Experiential Learning, Volume 4, 1977

LEADERSHIP EVALUATION AND TRAINING THROUGH BEHAVIORAL SIMULATIONS: METHOD, RESULTS, AND FUTURE DIRECTIONS

Phillip L. Hunsaker
University of Wisconsin-Milwaukee

Because of increasingly turbulent environment,[1] responsiveness under time pressure, ability to handle emergencies under stress, and quick decision-making are becoming major components for leadership effectiveness [8]. Other acknowledged attributes, such as perseverance, communication skills, and positive interpersonal relations are positively related to leader effectiveness, but under conditions of environmental turbulence they assume critical importance [31. Unfortunately, a leader's capability to perform effectively under stress is not usually identified until after he has been exposed to turbulent conditions in the field. As pointed out by Helme, Willemin, and Graf ton [3, p. 45], "prior exposure to a wide variety of demands in an unfamiliar setting provides reliable measures of behavior, which generalize beyond single specific situations, and therefore may be expected to generalize to other situations belonging to the same factorial domains. It follows that the practical application of the findings to leadership development of Army officers would be to arrange for such variety of demands in a novel setting to be incorporated into the ongoing training and experience program."

In recognition of these needs, the Army Research Institute for Behavioral and Social Sciences agreed to provide the funding for the development of a pilot simulation model which could be used by ROTC units in assessing the leadership potential of officer candidates in turbulent field environments. The result of this initial funding was the development of the Tactical Pacification Game [12] which provided a simulated environment allowing for the assessment of decision-making, leadership, and interpersonal skills applicable to a broad range of military situations.

The success of the Tactical Pacification Game led to further funding and the creation of two additional simulations. The Leadership Assessment and Training Simulation (LATS) [6] was developed to provide a method of identifying persons who are comparatively better able to cope with turbulence and to provide a training vehicle for enhancing this capability in all leaders. LATS presents a decision-making situation in which both information quantity and complexity are controlled. Consequently, personality and performance measures can be

[1] Turbulence is defined as a situation characterized by constant change and uncertainty regarding task relevant variables, their probabilities of occurrence, and their interrelationships [13].

administered before, after, and during the simulation. Varying the amount, content, and intensity of feedback information allows the LATS to be used as a training, assessment, and research vehicle.

The final simulation developed in this series was the Leadership Effectiveness Development Simulation (LEDS) [7]. LEDS is a military decision situation which interrelates economic, socio-political, and tactical dimensions. It is designed to experimentally allow for the development of specific tactical competencies as well as broader leadership, decision-making, and interpersonal skills.

The remainder of this paper will describe the procedures and scenarios for conducting these simulations and summarize their applications and results. Finally, future uses of these simulations will be discussed, including techniques for data collection, anticipated problem areas, and related research paradigms.

HOW THEY WORK: PROCEDURES AND SCENARIOS

All three of the simulations mentioned above have common settings, and similar scenarios and administration procedures. These common ingredients of the basic simulation model are described below, followed by a discussion of the various adaptations.

Simulation Environment

The common simulation environment is based on the setting originally developed for a tactical and negotiations game [10]. The setting is a hypothetical underdeveloped nation, which is governed by an unstable, quasi-military dictatorship. A rebellion against the present government is underway, but the amount of popular support for the rebellion is not clearly known. The present government has requested and is receiving aid from a foreign power in putting down the rebellion. Two player's manuals are provided and thoroughly studied by participants before beginning the simulation. One manual describes physical, military, economic and social-political aspects similar to those encountered during U.S. involvement in the Vietnam and Korean conflicts. The other manual describes the same situation as seen from the opposing point of view. These aspects are abstracted and generalized so that previous knowledge of actual or specific events is not elicited. Although stereotypic role playing, i.e., military officer, is suggested by the environment, the insertion of economic and social-political aspects provide situations which foster unique reactions. High participant involvement is generated through problems to be solved and competition between teams.

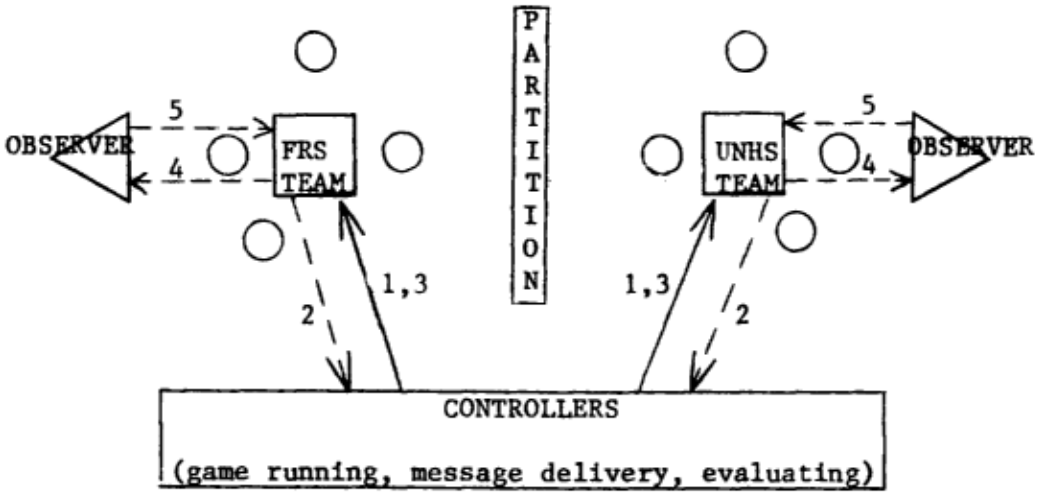
Knowledge of events in the environment is provided by the delivery of message cards describing occurrences in the hypothetical country and by feedback concerning the consequences of the decisions. Participant output is obtained from "'action,' 'planning,' and 'communication,' forms" on which players describe their specific reactions and/or initiatives to the message inputs. Message cards usually present at least three alternatives for dealing with the event. Estimates of the importance of the events, the effectiveness of planned actions, and chances for success of the chosen alternative are elicited by the "action forms." Players are also requested to originate alternatives and fully plan responses on a "planning form." "Communication forms" are used for searching out procedural information or other Interaction between players and the environment. In response to the actions selected or planned by each team, the game runner sends a consequence message which explains the outcomes and scores of the actions. The scoring system ensures a sense of interteam competition and Is constructed out of the responses of both teams to the same problem. A cumulative scoring form showing the progress of both teams is displayed for both teams to see. The units for measuring consequences are presented in a matrix format to demonstrate that the values of actions are dependent upon corresponding actions of the opposing team.

Game Room Layout

The simulation materials consist of three packages: an instructors' manual; the participants' manuals, the game materials, e.g. a large map of the hypothetical land area together with moveable pieces representing troop units, etc. The only items needed, beyond these three packages, are a clock or watch for the timing of periods of play and message delivery, pencils, and scratch paper.

A large map provides the action center for each team. It rests horizontally on the center of a table. Chairs and uniting space at the table are necessary for each team of four simulation participants. Teams should be separated by a partition, or located in separate rooms, If possible. A player's manual must be studied by each participant and game controller in advance of the simulation. Map accessories, a supply of planning, action and communication forms and grease pens are available to participants during the simulation. Finally, the game controller requires a supply of game and rating forms. Other forms can be used before, during, and after the simulation if research or rating is being conducted. Figure 1 provides a diagram of the game room setting.

FIGURE 1
PHYSICAL LAYOUT AND ACTIVITY SCENARIO



1. Controllers give problem cards to teams.
2. Teams return problem solutions to controllers on indicated forms
3. Controllers provide consequence cards containing problem feedback and scores, plus other evaluation information to teams.
4. - Observers continually watch team members' behavior and complete leadership skills diagnoses
   - Team members complete leadership skills diagnoses and give to observers.
5. Observers provide feedback and conduct skill building sessions with teams based on their own leadership skills diagnoses and the summaries provided by the team peer evaluations.

Administration

Figure 1 contains numbered footnotes documenting the processes involved in running the simulation. Usually, a simulation contains ten problems which the opposing teams have opportunities to solve. The problems are of two types. The first problem format describes a situation and requires the decision team to select the best of three possible alternatives. The second format presents a problem situation and requires that team members create their own plan of action to resolve the problem. A typical problem of this sort might be to prepare a defense plan for company headquarters which reportedly will be attacked by enemy forces.

Leadership Diagnosis

During the entire simulation, each participant is diagnosed by an assigned observer. The observer's function is to watch how decisions are made and how information is exchanged. At the conclusion of the game, each team member and the observer complete a Leadership Description Scale (LDS). Each team member rates himself and each of his teammates on twelve dimensions of leadership based on actual behavior during the simulation. The observer appraises each team member using the same LDS form. Three aspects of leadership are diagnosed. These are:

1. administrative competence,
2. decision making skills, and
3. team-building effectiveness.

The LDS is designed so that each of the three leadership aspects is defined by the sum of eight dimension ratings. Administrative Competence, for example, is defined by the sum of a participant's rating on dimensions of: communicates effectively, provides team structure, sets goals and priorities, motivates team members, shows high degree of task motivation, demonstrates team building skills, shows personal influence, coordinates team operation. The instructor analyzes the Leadership Description scales for each team on a Team-member Comparison Summary (TCS) which serves as an analysis summary. The final step in completion of a team's TCS is to rank participants by dimension, aspect and overall leadership exhibited.

FUTURE DIRECTIONS

Since the completion of the third version of the simulation, two additional products have been created to facilitate further research: (1) A computer assisted method of analyzing perception within small groups has been developed to extract sociometric perceptual appraisals of each team member [15], and (2) A human information processing model of the process of leadership has been developed [16]. Research utilizing the simulation is currently underway to apply and gather data to validate both.

Relationships Between Cognitive Structure and Turbulence

It has recently been demonstrated that individuals with high General Incongruity Adaptation Levels (GIAL) cope more successfully with the turbulent field environments [4] and are more open to risk-taking in complex situations [5]. It has also been found that individuals with higher cognitive complexity (CC) function better in complex and non-programmed types of work [1]. These, and antecedent studies, suggest that the GIAL and CC can be useful in identifying individuals with superior ability to cope with turbulence in their environment.

The five self-administered inventories, previously described, will provide psychological data for multivariate analyses which can be used to map these inventory scores onto the general incongruity adaptation level (GIAL) and cognitive complexity (CC) measures of individuals. GIAL and/or CC measures, and each of the inventory scores, have been studied previously and found to relate to such presumably stressful activities as risk-taking and decision-making. Work has already begun to uncover the constellation of personality characteristics possessed by those more successful in coping with turbulence [9].

It is expected that:

1. The degree of functional behavior, as indicated by the BOC, will increase with each of GIAL and CC at planned, high levels of turbulence in the simulated situation.

2. High levels of both GIAL and CC will be related directly to PER indicated ability to handle turbulence, but lower joint levels of GIAL/CC will be associated with PBR demonstrated leadership and perhaps also PBR measured interpersonal effectiveness.

3. Higher CC measures are associated with hierarchic and integrative decision styles.

4. Higher authoritarianism and lower interpersonal effectiveness are associated with the rigid decision styles, as is need-achievement.

5. Higher GIAL will be associated with the integrative style rather than the decisive style--while achievement anxiety relate inversely.

6. Defensiveness, as measured by the Marlowe-Crowne SDS [26], is expected to be associated primarily with the flexible decision style, and secondarily with the hierarchic style.

Demonstrated Leadership

Superior leadership as measured by the (1) PBR scale, (2) a derivative of the DSC analyses, and (3) judgments of simulation observers is expected to show a curvilinear relationship with GIAL. That is, intermediate GIAL persons are expected to be identified as leaders within the simulation. Leaders are expected to be on the decisive-integrative axis, and not extreme in either of the styles. It should be cautioned that leadership demonstrated in the simulation, even if found to be predictable, is not necessarily indicative of on-the-job behavior. Follow-up studies to gain longitudinal measures encompassing behavior still closer to actual job situations are anticipated.

REFERENCES

1. Boulgarides, J. D., Decision Style, Values, and Biographical Factors Relation to Satisfaction and Performance of Supervisors in a Governmental Agency, Dissertation, (Univ. of Southern California, Los Angeles, 1973).

2. Driver, M. J. and Lintott, J. F., Management Decision Styles, Unpublished Manuscript, University of Southern California.

3. Helme, W. H., L. P. Willemin, and F. E. Graf ton, "Dimensions of Leadership in a Simulated Combat Situation," Technical Research Report 1172 (U.S. Army Behavior and Systems Research Laboratory, July 1971).

4. Hunsaker, P. L. , "The Effects of Differences in Incongruity Adaptation Levels and Environmental Turbulence on Successful Completion and Leadership Effectiveness in Officer Candidate School," Proceedings, Annual Convention of the American Psychological Association (August, 1973).

5. Hunsaker, P. L., "Incongruity Adaptation Capability and Risk Preference in Turbulent Decision Making Environments," Organizational Behavior and Human Performance, Vol. 14, No. 2 (October, 1975), pp. 173-185.

6. Hunsaker, P. L., "The Leadership Assessment and Training Simulation: Training, Assessment, and Research Applications," Catalogue of Selected Documents in Psychology, JSAS, Vol. 4 (Fall, 1974), p. 151.

7. Hunsaker, P. L., "The Leadership Effectiveness Development Simulation," Psychological Reports, (in press).

8. Hunsaker, P. L., W. C. Mudgett, and B. E. Wynne, "Assessing and Developing Administrators for Turbulent Environments," Administration and Society, Vol. 17, No. 3 (November, 1975), pp. 312-327.

9. Hunsaker, P. L., B. E. Wynne, and W. C. Mudgett, "A Preliminary Model for Developing Managerial Capabilities for Coping with Environmental Turbulence," Proceedings of Midwest Academy of Management, (April, 1974), pp. 217-234.

10. Streufert, S., S. C. Kliger, C. H. Castore, and M. J. Driver, "Tactical and Negotiations Game for Analysis of Decision Integration Across Decision Areas," Psychological Reports, Vol. 20 (1967), pp. 155-157.

11. Mintzberg, H., "Managerial Work: Analysis from Observation," Management Science, October, 1971, B97-B110.

12. Mudgett, W. C., P. L. Hunsaker, and B. E. Wynne, "A Tactical Pacification Game for Leadership Development," Psychological Reports, Vol. 36 (1975), pp. 439-445.

13. Raynolds, P. A., "Developing Managerial Capabilities for Coping with Turbulent Environment," Academy of Management Proceedings, Thirty-First Annual Meeting, (August 1971), pp. 86-91.

14. Vroom, V., and P. W. Yetten, Leadership and Decision-Making, Pittsburgh: University of Pittsburgh Press, 1973.

15. Wynne, B. E., W. C. Mudgett, and P. L. Hunsaker, "A Method of Analyzing Perception Within Small Groups," Working Paper, University of Wisconsin-Milwaukee.

16. Wynne, B. E., and P. L. Hunsaker, "A Human Information Processing Approach to the Process of Leadership," Organization and Administrative Sciences, Vol. 6 (1975), pp. 1-26.

17. Wynne, B. E., P. L. Hunsaker, and W. C. Mudgett, "Social Decision Behavior in Turbulent Environments," Proceedings Fifth Annual Midwest Meeting, American Institute for Decision Sciences, Vol. 1 (May, 1974), pp. 2-12.