SIMULATION/GAMING IN THIRD WORLD DEVELOPMENT PLANNING

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Simulation/games have been widely used in many disciplines to represent the complexities of multiple decisions under conditions of uncertainty. They have been used in military training exercises for over 150 years, in business management training for over 30 years, and in urban planning for almost 20 years. Through deliberate abstraction of a problem to its basic elements, simula-tion games allow participants of widely varying backgrounds to gain an overview of problems that can clarify and broaden their perspective when they are faced with similar but more detailed issues in the real world. In addition to providing an overview, games also collapse time, enabling a player to see the effects of decisions over many years in the course of a few hours of play.

Simulation/gaming has been reasonably well-established as a teaching tool in many planning curricula over the past twenty years. In the past ten years they have also been frequently used in continuing education programs for practicing professionals active in planning and related fields. Throughout this period, simulation/gaming techniques have been readily adapted in countries outside the United States, starting with Europe, but more recently spreading to Africa, Latin America, and the Middle and Far East. They have also been useful in helping to overcome language, cultural, and disciplinary barriers when teaching the growing numbers of foreign students enrolled in United States planning programs.

A number of persons at the University of Michigan have been active in the development and use of simulation/gaming in urban planning and related areas.[1] Although most efforts have been directed toward applications reflecting U.S. conditions, sub-stantial numbers of students from third world countries have played some of these planning games. In recent years, a number of games have also been

used with great success to provide students in third world planning courses with an integrated experience in development planning. Additionally, games have been used on several occasions to help prepare students for work in developing countries,[2] and a number of games have been developed that deal explicitly with problems in developing countries.[3]

Although not attempting to catalogue all of these efforts, this article draws on many of these experiences to point out a number of the positive and negative effects we have observed in using simulation/games with students and professionals from third world countries, both in academic and field settings.

When the idea of running a game is introduced in a third world country, the first barrier encountered is the use of the term "game." Similar reservations arise in American and European settings but the issue seems to be especially sensitive in the third world.

In developing countries, planning is usually viewed as a technical, serious exercise that is rational, comprehensive and scientific. It is difficult to convince people that the process also involves subjective judgments. When planning is considered only as technological, subjectivity on the part of the consultant or the tools used are not well-received. This is equally true in developed countries. The general expectation is for the consultant to produce data, make slide presentations, etc. When a game is introduced the consultant is suspect. This is not a bad way to start off, however, provided the participants can be kept in the game long enough to see that serious issues are being considered in this apparently frivolous manner. The risk is that they may not be engaged for a long enough period of time, in which case the outside consultant loses face. But it seems preferable to take this risk at the outset and openly introduce the need for local information and subjective opinion essential to good planning rather than to create an illusion of precision and objectivity which is, at least partially, false.

The word "game" sounds somewhat frivolous in the English language, but its translation into most foreign languages makes it even less acceptable. It usually involves some connotation of children's

activities or-worse yet-leisure and recreational activities. Invariably, local hosts ask for more impressive sounding titles such as "simulation exercises," "heuristic mod-eling," and so forth. When possible, we have resisted such name changes both for the sake of consistency as well as because the term "game" tends to disarm participants and to entice them into participating, if only to humor the crazy foreigners.

As in the United States, it is helpful to have players begin a gaming exercise without too many preconceived notions as to what will happen. The intellectual content of the game, hopefully, makes itself apparent within the first few hours of play. The advantage of players regarding the activity as frivolous is that they are willing to try things that they wouldn't dare try in the real world for fear of losing their jobs or even their lives. Players can experiment with ideas and solutions in the game precisely because they do not consider the exercise to be realistic-at least at first.

If the game is well designed, however, after the first few rounds of play, players realize that it provides considerable explanatory if not predictive power. The outcomes of play are understandable, logical, and frequently offer insight beyond that available from commonsensical explanations. In some countries with fairly op-pressive political systems, however, we found people unwilling to risk their status or reputation by introducing new or unpopular alternatives, even when playing a game. Innovation and creativity in planning are rare in such countries, with or without games.

Providing a good debriefing is especially important when dealing with people from developing countries. A good review of the game and its outcome provides an integration of what happened in the game with what could happen in the real world. A well-handled debriefing with adequate time for discussion questions, and debate makes players compare the structure of the game to corresponding structures in their own countries, helping them to recognize what the model is and how it is and is not appropriate to their own circumstances.

Because learning by rote is the traditional model of education in many third world countries, an exercise which points out deficiencies in a model is particularly useful to students from developing

countries. It is also helpful in teaching third world practitioners to critically assess models in light of their own real world experience. Innovative and speculative thinking may be thus encouraged.

Games help persons of widely divergent backgrounds to communicate better with each other. In most cases, prior training or experience is of little significance in how well one plays a game, even when the game is quite realistic. Children can often successfully compete with adults, and public officials and intel-lectuals can operate in the same arena with local farmers and workers. Success in play is primarily based on understanding the game itself, not on previous training or education. Indeed, too much training may hinder play. Better educated persons often insist on playing the game based on abstract theories of how the system is supposed to behave rather than on the simple reality of the model contained in the game. Less educated persons appear to do better because they can understand and accept the rules of the game more quickly than their better educated partners.

American operators running a game in another country usually introduce it in English and try to continue to use it throughout the game. As the game progresses and excitement builds, however, players inevitably begin to argue and deal with each other in their own language. At this point, unless operators are fluent in the local language, they begin to lose control of the game because they are no longer able to understand what is being discussed. It is difficult for them to know whether to break into a spirited discussion in order to resume play or whether the discussion is relevant to the outcome of the game and should be allowed to continue. When possible, it is preferable for someone who knows both the local language and the subject matter embodied in the game to be trained as an operator in order to understand and better control the flow of information in the game.

A recurrent theme in most development planning is the necessity of securing grass roots participation in the design, implementation, and acceptance of the plans. The success of many development programs appears to be more dependent upon being understood and accepted by individual workers and farmers rather than on their elegance or sophistication.

Games stimulate participation and understanding, not only for the reasons already outlined, but also because they usually have physical properties that make them easier for less educated rural populations to understand. Most games use physical artifacts such as boards, colored papers, and three-dimensional playing pieces. These and other artifacts that people can identify with can be collected in the field. Paper, seeds, beads, wooden blocks, pencils, and dice that may be available locally can be quickly converted into playing pieces representing various game com-ponents. Village people are reassured by the familiarity of the objects involved and by having helped to collect them. Already the game partly belongs to them.4

Furthermore, most village people are already familiar with playing games in the village. With careful planning, games can be introduced that are similar to or based upon games already existing in the culture, thus increasing the likelihood of local participation and understanding. In India, for instance, villagers are familiar with indigenous board games that are the precursors of chess, and often playa variety of card games. Games developed for such settings will be more readily received if they embody some of these characteristics.

When a game is assembled or "loaded" in the field, the village participants can help to decide the weights to be given various factors, the artifacts to be used to represent them, and the values to be ascribed to various components.

If the weightings of game components are out of line with the reality known to participants, this discrepancy can become the starting point for discussions of more appropriate weightings of factors represented in the game. The design of a game in the field can begin a dialogue that leads to the closer integration of local needs and desires with the long-term goals and plans of higher authorities.

Through this activity, diverse actors such as bureaucrats who know the intricate workings of the administrative system, village leaders who know the terrain, farmers with small amounts of land, and

landless peasants with no resources but their own bodies can all be brought together and involved in discourse and interactions that would rarely occur between these groups under normal circumstances.

The ability to visualize outcomes in three dimensions or several years into the future is significantly enhanced by simulation/ gaming. The use of three-dimensional playing pieces to represent outcomes in physical space including location, mass, and crowding is helpful in directly reading from the playing board a better understanding of the spatial implications of real world decisions. For example, in a game in which decisions are made about the location of a small scale dam for irrigation, players may toy with various sites on the village stream and see the outcomes of each clearly articulated in three dimensions.

Similarly, because each round of play usually represents weeks or years in the real world, players learn to think of long-range outcomes over several years or decades rather than limiting their temporal horizons to a few days or a single year. This allows all participants, not just the educated and powerful few, to under-stand who will gain and who will lose land, water, and access. People can explore alternatives that they may not have con-sidered. Different alternatives resulting from different courses of action can be experientially learned through playing games.

Hernandez has described the utility of CLUG[5] (Community Land Use Game) in helping the citizens of Bariloche, Argentina to better visualize and understand the impact of different planning options for their city.[6]

Game players become active participants in decision making and the outcomes of play. This suggests the possibility of their active participation in and impact on the outcome of the analogous real world situation. One of the problems of centralized planning has been that programs and policies are presented to recipients as fait accompli. Villagers can only choose to accept or ignore the decisions of others. Games suggest means by which local residents can participate in both planning and decision-making.

However, games can mislead people into thinking that they can intervene when, in fact, they cannot. Even if the right game is chosen and used creatively, higher level decision makers may not allow the outcomes employed in the game to be used in reality. This issue arises in all types of planning, however, particularly when inputs are received from many different levels. Power elites do not always accept "rational" plans that evolve logically from either analytical or participatory processes. Nevertheless, games are particularly potent in that they may help those outside the elite structure to better mobilize and present their own interests.

Motivation tends to be enhanced with participation in a game in the same way interactive folk-theatre in the villages has been successful in eliciting involvement. Villagers sometimes express hopelessness and apathy toward the idea of changing their situations. Generations of stagnation coupled with inadequate or ineffective governmental programs have taught them not to expect results regardless of the promises made by officials. The mobilization of these people is necessary in order for policy to respond to their needs and be accepted by them. Because most games provide challenge, excitement, and understandable pro-cesses, players are usually motivated toward better understanding and participation both in the game and in the processes the game represents.

Games are likely to be highly effective at the village and small farm level. They may, in fact, be useful tools to help counteract overly centralized planning and decision-making. Compared to other available tools such as mathematical modeling, games are a good means to involve people who are poor and less franchised. Like village theater, games have the potential to make difficult problems more directly comprehensible to the less educated and nonelite in rural areas of the third world. Given a political will to do so, they provide a method to help enfranchise those currently disenfranchised by poverty, lack of understanding, and poor communication.

The attributes of games described in this article and their usefulness in training and teaching third world students and practitioners suggest that simulation/gaming may be a currently underused but very effective tool in development planning. We hope that this discussion may stimulate others to experiment with the use of gaming in third world planning and make their observations of successes, as well as failures, available to the gaming community.

NOTES

1. In addition to the authors of this article, others active in simulation/gaming in the Michigan College of Architecture and Urban Planning include Aron Adiv, Harold Borkin, Colin Clipson, Richard Duke, Robert Johnson, Paul Ray, Mitchell Rycus, and Katherine Warner. Elsewhere on campus, staff involved in the development and use of games over the past decade include Layman Allen, Larry Coppard, William Gamson, Fred Goodman, Armand Lauffer, Dana Main, Robert Parnes, Carl Rinne, Joan Ross, Ken Smith, Russell Stambaugh, Barbara Steinwachs, Len Suransky, and Edgar Taylor. Additionally, perhaps a hundred graduate students, research assistants, and visiting scholars have also been very active in the development and use of simulation/games in a wide variety of contexts.
2. Gary Shirts' game "Bafa Bafa" (La Jolla, CA: Western Behavioral Sciences Institute) was used by the Extension Gaming Service at Michigan in a program to prepare Peace Corps Trainees for their work in developing countries.
3. The HEX Game by Richard Duke was developed for an International Workshop on Training of Human Settlement Managers organized by the University of Science and Technology at Kumasi and the Tema Development Corporation of Ghana in 1976.

   UNTODES, the United Nations Tourism Development Simulation (Paris: UNESCO, 1969) was developed by Richard Duke, Michelle Coyer, and Jan Graff to help local officials evaluate and plan for a variety of tourist-oriented developments in Sicily.

   SNUS, the Simulated Nutrition System by Richard Duke and Robert Cary (U.N.: Health Education Monograph, Vol. 5, Supplement I, 1977) portrays the conflicting choices between industrial,

consumer, and agricultural development in a developing society involved in both internal and external trade arrangements.

4. The General Systems Game Kit developed by Richard Duke for UNESCO is a good example of a set of game components designed to maximize the use of local personnel in designing games unique to their own local situation. His described in "Human Settlement Managers Training Programme" (Paris: UNESCO, SS-79/ ws/35, 1979) and in Environnement Africain (Paris: UNESCO, May 1980).
5. CLUG (The Community Land Use Game) was developed by Allan G. Feldt (New York: The Free Press, 1972). CLUG involves players in developing and operating industries, stores, and residences in a growing city while making decisions about taxes, municipal facilities, and transportation services.
6. Raul A. Hernandez and Raquel G. Mochkofsky, Teoria del enlomo humano (Buenos Aires: Ediciones Nueva Vision, 1977).