Reports and Communications

Simulation in Mexico: A Case Study Using CLUG

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The article presents a brief overview of CLUG and discusses a few runs of it in the graduate planning program of the Instituto de Ingeneria y Arquitectura of the University of Juarez, Mexico. As such it suggests ways that CLUG might be improved when operated in a developing country.

KEYWORDS: *language/research; Mexico; simulation/gaming; Spanish.*

The following is a brief report concerning some initial runs of the Community Land Use Game (CLUG) at the Autonomous University of Juarez, Mexico. For the most part there were two important aspects to this experiment. The first centered simply on determining the efficacy of the model as a pedagogical tool in a Mexican planning curriculum. The second centered on the use of Spanish to play and operate the game.

Gaming has long been recognized as an important heuristic device to clarify the process, stakes, and roles of actors in city planning. Most often it has been used in graduate planning programs in North America and western Europe to supplement group studio work that focuses on the development of a comprehensive plan. The gaming experience emphasizes the dynamic aspects of community development that often are omitted in the studio exercise – that is, the notion that urban systems are continually changing and evolving while the city plan is being formulated or updated.

In spite of the growing interest in operational gaming and the continual development of new models by planning educators in Europe and North America, the permanent use of simulation in planning curricula in developing

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nations has yet to be established. For this reason, it was felt that an attempt to mount a simple model within the planning program of a university in Mexico would not only give an indication of the potential for such a heuristic tool, but provide some measure of student and faculty interest in gaming as well.

The Community Land Use Game developed by Dr. Allan Feldt of the University of Michigan seemed well suited for exploring and assessing the receptivity of gaming as a teaching tool. It is played on a board, uses tangible gaming materials—for example, cash, bid forms, representational pieces—and in general has an appeal to a wide range of possible participants.

The opportunity to experiment with CLUG in Spanish arose during the summers of 1989 and 1990 when I received an appointment as a visiting lecturer in the planning program at the Autonomous University of Juarez, Mexico.

The Community Land Use Game was chosen for the exercise because it is relatively easy to learn (it has been used with elementary school children on several occasions), requires considerable participation from the players, and replicates the process of planning fairly accurately—that is, the interrelationships between changes in land use, transport, and utility extensions, and the need for community support (coalition formation) for the funding and maintenance of capital improvements. For those unfamiliar with the game, it proceeds as follows through several cycles or iterations of play:

1. Assess real property
2. Receive income for industries
3. Pay employed residents
4. Pay stores and offices
5. Pay transportation costs
6. Pay taxes
7. Set the tax rate
8. Buy and sell land (Play begins at this step in the first round)
9. Extend utilities
10. Throw dice on buildings (Executed only every 5th round)
11. Construct, move, or demolish buildings
12. Designate place of employment
13. Set prices in stores and offices
14. Sign trade agreements
15. Receive income for cash on hand

Other than calculating a team's net worth or cash flow at the end of play, there are no winners or losers in the Community Land Use Game. The model serves only to illustrate how a community would develop given the set of

parameters established and the particular choices and decisions made by the players. Evaluation of play can be determined by such criteria as the efficiency of land use patterns, levels of revenue maintained to defray public costs, and perhaps evidence of public regarding attitudes amongst the players —for example, willingness to accept less profit to maintain open space in central areas, achievement of balanced growth, and/or the extent of cooperative actions (trade and employment) reflecting a degree of sharing that would foster a spirit of community.

The Game Participants

Participants in the exercise were students in the Graduate City Planning Program. All were in their first year, and most were attending part-time or were returning to school after having worked for some time in either architecture, planning, social work, or a related field. Only one student spoke English. None had their education funded by grants or parental support. Half of the group were women.

Summary of the Gaming Activity

As in most initial CLUG runs, the students responded strongly to the "gaming" aspects of the exercise. Most viewed themselves as competitive developers even though there were several times when strong efforts to "plan" took precedence. For example, a large public revenue surplus available at Step 9 of Round 2 served to bring the players together to discuss possibilities for directing the growth of the city. Initially two of the teams suggested the idea of an urbanized corridor as well as the expansion of a growth node around one of the transportation terminals where they both had land holdings. However, the third team posited the notion of a "new town" in an area where it held some land. Because this also happened to be a central area between a transport terminal and the periphery where the other teams had made speculative purchases early in the game, a coalition was soon formed to execute the plan. This kind of play recurred several rounds later when a second revenue surplus again became available.

The most important point brought out in the exercise was the idea that sound planning was not only an open process, but one in which the public and private sectors interacted most dynamically. For the students the role of the planner had been decidedly broadened to include the tasks of issue

formulation and negotiation as well as those of design and municipal management. For the Mexican students this was an important insight. Gaming skills developed political skills, which in turn became planning skills.

Suggestions for Improving CLUG in a Developing Country

The runs of the Community Land Use Game in Mexico manifested some interesting notions about gaming. The first was that the local language should be used. The use of English to play and operate the game abroad can be of some general benefit for enlarging the gaming audience in planning schools and agencies, but it falls quite short on other important dimensions in the education of planners. This is because English is usually known only by individuals of higher social status in developing countries. Thus, the pool of participants is not only fairly restricted, but the focus of the exercise can be largely obscured. In building communities, winning (acquiring wealth or a substantial cash flow) is "neither the most important thing or the only thing." This is a major point to underscore because a general purpose of gaming (especially CLUG) is to demonstrate that good community development stems from coalition building among individuals from different social classes.

The second notion was that the use of local examples of problems and issues to clarify gaming situations and operations of play is important. For example, when residential development is constructed on the board in the early rounds of play to take advantage of specialization benefits to lower construction costs, the units often lack employment. When such circumstances occur they might be likened to existing local conditions of overbuilding resulting either from poorly coordinated housing programs or structural market defects.

The third and last notion was that the use of local terms for building types, operations of play, and municipal development is of great importance if the simulation is to have its full benefit for the participants. For example, charges for local stores had to be explained as costs incurred for purchase of a certain spectrum of consumer goods that were available at the neighborhood level. The mix of expensive housing and shops along prominent avenues of many Mexican cities tended to blur the usual distinction that we often make between downtown shopping and local or neighborhood shopping.

If anything, the experience demonstrated that a model based largely on theories of American urban development could have sound applications for a Mexican city. It also demonstrated that the use of the local language tended to enrich the exercise appreciably. In this regard the work in

Juarez made some modest contributions to the general mosaic of urban simulation research.

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