

A personal perspective on the evolution of gaming

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This article presents a quick sketch of the author's experiences with gaming. For more than four decades, he has had the opportunity to do gaming as a more or less full-time occupation. There has been a learning curve, slow but sure, as a consequence of working on more than 100 gaming exercises. Because these experiences were typically team efforts, the author has worked in close contact with many fine gamers over the years and has benefited a great deal from these contacts. Given that the teams averaged three to five people each, it is clearly not possible for the author to mention all of those with whom he has worked. A few projects are described briefly and the team members acknowledged.

KEYWORDS: *urban games; METROPOLIS; computers; METRO; METRO APEX; NASAGA; ISAGA; human settlement games; frame games; strategic planning; certificate program.*

Early Experiments With Urban Games

The late 1950s was a time when modern urban planning theory and practice were in their infancy. There was a need to include social, economic, environmental, fiscal, and political realities into planning, to stretch the field beyond its traditional focus on the physical environment. Stuart Marquis and I set about developing the materials required to make Lansing, Michigan into a "Laboratory Community." It was a smorgasbord of pertinent documents that provided the background that planning students needed for their studies at Michigan State University. To enliven this collection, planning students were asked, when discussing an assigned planning task, to represent the perspective of a significant community figure such as the land developer, builder, mayor, city council member, or citizen group leader. It was a rudimentary game; however, at the time, I was unaware of the phenomenon of gaming.

This was an ad hoc activity spawned by the necessity of having students understand and communicate effectively about this very complex urban environment. This game (METROPOLIS) served both to help students better understand how to use the Laboratory Community and to engage city council members in discussing emerging trends in the Lansing area. It elicited a great deal of interest; participants enjoyed the game. Clearly, it served a useful communication purpose.



METROPOLIS, my first game, became a by-product of the Laboratory Community. This was a defining moment in my career in that I experienced the power of experiential learning. I am indebted to Stew Marquis for many reasons, including his contribution to METROPOLIS (Duke, 1975) and for his having introduced me to the early literature of systems analysis, which served as a foundation for our work together. This game has been used at universities throughout the United States and Europe.

As METROPOLIS unfolded, my interests shifted away from traditional urban planning toward gaming as a phenomenon. At this point, Stew introduced me to Richard Meier, at the time a leading proponent of the gaming approach (Meier & Duke, 1966). Professor Meier took me under his wing, giving me both moral support and access to a broad range of gaming literature (as of a few months ago, Professor Meier was still an active gamer in California).

With the encouragement of both Stew Marquis and Dick Meier, I decided to go for a bigger and better game. If METROPOLIS was successful as a hand-calculated game, why not make a more exotic version on one of those "new-fangled" computers? (In retrospect, a bad idea! I now believe in simple single-purpose games.)

It was a time when a significant number of planners believed that it was possible to model a major metropolitan community as a predictive, scientific tool to evaluate various proposals affecting the community (Duke, 1966). This later proved to be a rather simplistic view, limited in theoretical content and technology; however, it was an "idea in good currency" at the time. In 1964, with funding obtained from the U.S. Department of Housing and Urban Development and from the Ford Foundation to purchase a computer (an IBM 1130 with 8 k of memory, no CRT, no keyboard entry, programmed in machine language with wire connectors and a plug board!), the project was begun. Three years of heroic effort produced the METRO game/simulation. Despite initial skepticism and resistance related particularly to the costs of developing such games, METRO was widely adopted and is still in active use at more than 100 universities around the world. A large group worked on this project, but special mention must be made of Stew Marquis, Paul Ray, Roy Miller, and Don Kiel. The attempt to meld social science models with quantitative models (financial, demographic, transportation) revealed the need for a continuum ranging from simple games to "scientific" computer simulations. This effort also revealed that no coherent, systematic design method was yet available.

A new game called METRO/APEX resulted from the collaboration between the METRO team at the University of Michigan and a team at USC (Duke, 1971). Having undergone a metamorphosis, METRO/APEX has since been used for several decades by the USC Air Pollution Control Institute as well as other groups. Richard McGinty was the prime collaborator on this project; he, in turn, had a staff of a half-dozen people working on the project. Mark James has kept this exercise alive for 30 years and still assists users at a variety of locations around the world.

Evolution of the Profession

It was a time when gaming had begun to gain popularity. The East Coast War Games Council, established around 1961, had been co-opted by gamers with a broader-than-military view into becoming the National Gaming Council. This group was soon to become the North American Simulation and Gaming Association (NASAGA), which remains a viable gaming group today. There was a small group that was very active in these developments. In particular, Al Feldt comes to mind. He joined the faculty at the University of Michigan and worked as part of the METRO team. He also developed a wide variety of games, perhaps the most famous of which was CLUG. Al was also central in promoting frequent professional exchanges among the various faculties then at the university.

About this time, the University of Michigan gained a reputation for being a hotbed of gaming; Bill Gamson, Al Feldt, Fred Goodman, Layman Allan, and many others were actively pursuing gaming techniques in their respective professions. In 1970, when we hosted NASAGA at the University of Michigan, there was a large and enthusiastic turnout of people using gaming in many different ways across the United States; in 1973, the first Joint NASAGA-ISAGA Gaming Conference was held in Washington, D.C.

The emerging professionalism of gaming was reflected in the publication of the first issue of *Simulation & Games: An International Journal of Theory, Design, and Research* in March 1970 by Sage. This journal has been my salvation; as a professional gamer, it has provided access to activities worldwide; as a teacher, it has served as a ready access to the literature for students.

Gaming had taken me to a number of European countries as a participant in various design projects.¹ While working with Hans Hansen and Al Feldt in Bad Godesberg in the summer of 1969, we initiated an impromptu, informal conference of gamers, which ultimately resulted in the creation of the International Simulation and Gaming Association (ISAGA). This has been three decades ago, and the friendships initiated at that meeting endure to this day. ISAGA has grown quite strong over the years; special thanks are due to Jan Klabbers, Cathy Greenblat, David Crookall, and many others. The annual ISAGA meetings provide an opportunity each year to reconnect with friends from around the world.

A second defining moment in my career was as a result of a trauma injury in 1972. This caused me to spend a major part of that year in a hospital bed. This forced confinement gave me the opportunity to reflect on the many games I had encountered. They seemed to share little in common in either procedures or products yet they were clearly quite valuable. What was the common thread? During this time and in the following year spent as a fellow at the Netherlands Institute for Advanced Study in the Humanities and the Social Sciences at Wassenaar, I attempted to articulate a common thread of communication that seemed to pervade these instruments (Duke, 1974).

In 1973-1974, a chance encounter with Pierre A'yala of UNESCO resulted in the opportunity to develop a series of games for use in the developing world (Duke, 1976). These games demonstrated that the technique was very useful as a way to quickly provide a cogent model of urgent problems. For example, the SIMULATED NUTRITION SYSTEM (SNUS) game was used extensively for nutrition planning (Duke, 1977b). HEX, which presents a simple model for sectoral economic planning, was found to be particularly effective in demonstrating issues of intersectoral economics. Experimentation with the design of these games underscored the perception that to be useful in developing countries, it was essential that games be straightforward and simple (Dandekar & Feldt, 1984). These projects gave me the opportunity to work with many people. I would like to acknowledge at least two, Rob Cary and Opanin K. Buabeng of Ghana. Osafa, now departed, was instrumental in getting the HEX game (and others) into use in several African countries. Rob worked with me on many of these projects, and we are still in touch. There were also many other students involved in these efforts.

By the early 1970s, courses using gaming were beginning to appear at many different universities. However, the treatment of gaming tended to be incidental, not central to the course content. Students wanting to gain in-depth knowledge of gaming had to comb the literature and review reports of projects from many different fields of study. The paucity of literature that treated gaming as a legitimate field of study was frustrating. I had the good fortune of meeting Cathy Greenblat at the ISAGA conference in 1970, where she presented her state-of-the-art gaming in sociology. We collaborated to develop a textbook, which addressed gaming in its own right (Greenblat & Duke, 1975). By the 1980s, courses in gaming appeared at universities around the world, and we wrote a second text (Greenblat & Duke, 1981). Cathy's contribution to the discipline and to my own understanding of a variety of games has been considerable.

Frame Games

Prompted in large part by my work in developing countries, which highlighted the need for simple, flexible, and efficient tools, I became interested in frame games. This approach presented a way to resolve a dilemma. Games are "situation specific" and as a consequence do not perform well outside the context envisioned during their design. But developing new games for each specific use is very costly and time-consuming. Two possibilities presented themselves for addressing this constraint: (a) evolving a more coherent and efficient design process and promoting it in written work (Duke, 1980) and (b) using generic frame games in which appropriate content could be added to a standardized game process and mechanisms. Using this approach, three successful frame games were developed for Monterey Bay, California (Duke & Greenblat, 1979).

By the late 1970s, a new type of client for gaming began to emerge. Increasingly, leaders of large organizations, public and private, sought to develop strategic visions.

In some cases, these clients were prompted by a crisis that demanded immediate attention; in other cases, they were aware of complexity that, as a practical matter, defied quantification of the decision environment. Various efforts at strategic planning using gaming/simulation as a tool were developed (Duke, 1977a). Clients included an international bank, a major railroad, a large pharmaceutical house, and a large chemical company, among others.² Different teams worked on the development of these games for policy use; certainly Mats Lorstad, Ivo Wenzler, Hema Dandekar, Jac Geurts, Pat Sweet, Steve Underwood, and Andrea Frank must be mentioned as vital team members. By this point in time, young professionals were taking the lead on these projects in most cases.

Institution Building

In 1981, the Rackham Graduate School at the University of Michigan approved the Certificate Program in Gaming & Simulation, thereby providing an institutional structure in which students from around the campus could take a series of courses and receive academic credits and a specialization in gaming and simulation. It thus created an opportunity for interdisciplinary exchange and experimentation. Hemalata Dandekar, my colleague of many years, was a stalwart supporter of the Certificate Program in Gaming & Simulation.

This effort to “institutionalize” the discipline of gaming and simulation within an academic institution was rooted in the commitment to bring rigor to the state of the art of gaming. The argument was this: Given that there existed a robust profession with thousands of practitioners, tens of thousands of gaming products, and a variety of gaming methodologies, there was an obligation to responsibly develop a disciplined approach, to set standards, and to distinguish between “good” and “bad” games. A good public image depends on making these distinctions and not tolerating confused, imprecise, inadequate, or otherwise suboptimal gaming products and their inappropriate use. Although others worried that formalization of gaming as a discipline might endanger the very core of the technique by stifling spontaneity, a much greater danger exists in constantly presenting a mishmash of technique, defended with loose and undefined jargon, which fails to convey consistent meaning even within the profession. My years with this program brought me into daily contact with students from many campus programs and with visiting gamers from around the world (Professor Tsuchiya spent a term with us last year).

In 1994, we hosted ISAGA '94 at Michigan, and the success of the meeting confirmed the long-standing belief that gaming had a significant role to play in societal affairs. A new generation of gamers, from more than two dozen countries, presented a wide range of substantive concerns. It was an indication that the field of gaming was reinventing and rejuvenating itself. This is confirmed in the proceedings of the conference, which contains 31 chapters addressing the use of gaming appli-

cations, policy exercises, research, and the refinement of the techniques of gaming (Crookall & Arai, 1995).

In concluding, there are many projects and many individuals who are not mentioned above. For example, having taught four gaming courses a year for more than 20 years, I am indebted to many, many students who have participated in the design of various games and for their enthusiastic participation in the evolution of this profession. There are hundreds of students I would like to mention, but I would be amiss not to mention Mary Margaret Munski, Greg Altland, Charlene Proctor, and Charles Hall, who have gone on to develop games professionally.

With luck, I will have another four decades to engage the world of gaming.

Notes

1. Working as a consultant to the United Nations (FAO, Rome; UNESCO, Paris; IDEP Senegal, UNEP, Ghana, and others); the Cologne Project, Germany Ministry of Housing, 1969-1972; French Government Ministère de L'équipement et du Logement, Paris 1969-1973; U.S. State Department, International Conference on Environmental Problems, 1971.
2. These projects have included the following: "Transformation" (The Sustainable Corporation), for the University of Michigan Business School; "SEIDL" (Establishing Research Priorities), for the International Joint Commission on the Great Lakes; "IVHS" (Intelligent Transportation Systems), College of Engineering, University of Michigan; and "Learning Leverages" (National Health Care System Simulation) for a private consulting group.

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