

Developments in Business Simulation and Experiential Learning, Volume 34, 2007
INITIATION OF RESEARCH ON GAMING SIMULATION IN JAPAN

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ABSTRACT

Research on “ENREN”, a vanished Japanese term meaning a gaming simulation, was pioneered in July 1941 in Japan. A national graduate school of gaming was established under the administration of a civilian Prime Minister on September 30, 1940. Until the school closed on March 31, 1945 due to aggravation of the war situation, over 100 graduates had graduated from the school. This paper will examine the first social or serious game developed by the school in order to show that the first Japanese gaming simulation is not a war operation game, but a policy exercise, more precisely a policy formation exercise involving some professors from colleges, many junior executives from the public and private sectors as well as some officers from the army and navy.

**HISTORY OF SOCIAL GAMES TO BE
REVISED**

Gaming science can be an essential discipline of social sciences. Theories of the social sciences are reflected in the development of societies. Researchers on gaming should learn from history in order to develop theories of gaming. A scientific discipline that lacks theoretical support would never survive among the competitive fields of social sciences. The academic objective of this research is to contribute to the establishment of a gaming theory for game theory (von Neumann & Morgenstern, 1950). This historical research (Ichikawa, 2003&2004) has been found still midway for gaming science because of time consuming process in discovering fragmental historical materials.

Historically and academically, a fundamental phrase in this discipline, “Theory of Gaming” was first defined by Shubik (1975). Duke (1974: x-xi) who also proposed 25 impressive postulates of gaming simulation summarized on the birth of gaming as follows;

World War II spawned at least five developments that have been woven into the fabric of gaming: computers, operations research, the mathematical theory of games, simulation, and the early business games. “Gaming” for social science purposes did not emerge in its own right until the early 1960s; and the various gaming products of the ensuing decade reflect an initial confusion in its application.

Almost all of the papers and books on history of gaming simulation circulated in the world of gaming researchers quote an excerpt from one referenced as a

RAND report (for example, Specht, 1957) published in 1957 just before the business game was first published. The following is the most frequently referred excerpt of the report.

Just sixteen years ago a so-called “research institute” was set up, an institute of a very peculiar kind and with peculiarly limited aims. This was the Total War Research Institute, established in October 1940. Here military services and the government joined in gaming Japan’s future actions: internal and external, military and diplomatic. In August 1941 a game was written up in which two year period from mid-August 1941 through the middle of 1943 was gamed, was “lived through” in advance and, of course, at an accelerated pace. Players represented the Italo-German Axis, Russia, United States, England, Thailand, Netherlands, East Indies, China, Korea, Manchuria, and French Indochina. Japan was played, not as single force, but as an uneasy coalition of Army, Navy, and Cabinet, with the military and the government disagreeing constantly – on the decision to go to war, on X-day, on civilian demands versus those of heavy industry, and so on. Disagreements arose and were settled – in the course of an afternoon, at the pace of this game – with the military group, by the way, as the more aggressive one, winning the arguments.

In the early business game era, researchers and developers of business games (for examples, Jackson, 1959; Cohen & Rherman, 1961) often referred to the Japanese war game as a direct ancestor to business games. The success of early business games was so absorbing that with a continuous chain of a historical review of the social game, research professors in international relations (Guetzkow, 1959) and then other social sciences started to join the development of gaming systems especially for educational use.

During the time the report was published, only war games that had only been employed in military institutions and a social game were known. It was natural and reasonable that they identified and classified this game into the war game because they had no knowledge yet about usefulness of the game approach to the growing complexity of social problems in the future.

During my sabbatical stay at the School of Information, University of Michigan in 2002-3, I set out to do the research to know what the game was in detail because I thought this was a good opportunity, since the university library network has a reputable Japanese library, especially with the rich materials on the International Military

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Tribunal for the Far East. Eventually, reading references on war games led the way to my digging out a social game in the book "Pearl Harbor" (Wohlstetter, 1962: 355-356). The following is an excerpt concerning another war-game-like game having been long forgotten in the history of gaming simulation.

One of the most interesting examples of the Japanese inability to understand American psychology was a combined political-military game played out by the Japanese during the month of August 1941 (Evidence for this game is fragmentary, since the legal staff engaged in research for the Tokyo War Crime Trials was primarily interested in establishing the existence of the sponsor). This game, though not so well known as the naval war game played in September, attempt to deal with some long-term considerations. The participants, drawn from the Army, the Navy, and the government ministries, were members of a Total War Research Institute in Tokyo.... The countries represented included Italy and Germany (treated as one), Russia, America, England, Thailand, the Netherlands, East Indies, China, Korea, Manchuria, and French Indochina. With fidelity to the actual domestic scene, the players did not represent Japan as simply one team with a single interest, but as a coalition of conflicting interest that had to reach an agreement on major issues. There was, for example, disagreement as to the inevitability of war, the date and manner of beginning the war, the number of adversaries to be engaged, and the economic controls needed to support the war.

As it was in 1962 when the book was published, the author seemed to have known, but not so much, about serious games in social sciences, such as business games and international relations games. She tried to distinguish political-military games from war games as can be seen from the careful usage of the two terms. Her introduction on the policy-military game was appropriate enough to encourage and motivate me to do a historical research for the Japanese society of gaming simulation, even though half of her introduction, later, has been found misunderstood as a result of my time consuming document retrieval.

Unfortunately, her introduction on the policy-military game or the first gaming simulation in Japan was far from the history of gaming simulation.

One thing that should be pointed out is that both authors must have intensively referred to the same single resource that I believe was the official record of proceedings of the International Military Tribunal for the Far East (all in English) dated October 29 and 30, 1946.

I myself started to read the record of proceeding of the International Military Tribunal for the Far East, in particular, numbered 100 and 101. Eventually I have come to believe that war gamers were more interested in war games than the social games so that they emphasized on the topics of war games. As a result the first social game in Japan has been ignored historically and academically.

With my serendipity on the theory of gaming, however, I found the existence of a judging group in the game that every other gamer missed. Two of the exhibits listed "Judge Saidaijo of the Ministry of Commerce and Industry" (a Japanese-English translating military officer should have translated "judge" into "referee") as a document recipient or a constraint card in the terminology of gaming. He would be a judge of the judging group. I then visited several libraries in Japan and as a result I found that there is only one sheet, one and half page size of A4 like letter size, listing all the judges of the game, which remained in the National Archives of Japan. The judging group consisted of 34 specialists and five secretaries. This group was divided into four teams according to their specialty and only one of them was composed of eight military personnel.

THE GRADUATE SCHOOL OF GAMING

The Japanese Total War Research Institute, a school of gaming, the naming of which however can be misunderstood as a military organization, was established under the administration of the Prime Minister on September 30, 1940. The academic year started on April 1 and ended on March 30 of the following year. The school's enrollment in 1941, 1942 and 1943 was 35 or 36, 39 and 40 respectively.

As a school of gaming, the institute designed a policy exercise game for only the graduate students of the first academic year. The game was exercised only once between June 11 and November 26, 1941 because the Japanese military government was established on October 18, 1941. Even though, the final phase of the game started on September 29 and continued until November 26, all the players were supposed to write thesis on their gamed roles with an expert view of their own real-life professions.

THE POLICY EXERCISE GAME

GAME CONSTRUCTION

The game was designed, constructed and carried out in the form of a dialogue, "Experts-to-Experts mode" as a way of forming a more perfect communication about the totality of war planning that was being pursued. The game consisted of probably self-learning, team-learning, play of game, post-presentation and debriefing. The self-learning phase was carried out probably between June 11 and July 11 in 1941. The issue seminar was carried out probably between July 12 and 30. The playing of the game was carried out probably between August 5 and 26. The post-presentation was carried out probably on August 27 and 28 with the participation of the real-life prime minister and his real-life cabinet ministers.

PARTICIPANTS

The players of the game were selected from different sectors. Most of 36 players were governmental officials.

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Eight of them were from the private sector. Only six players were from the military. Their ages were 30 to 37 years old; with an average of 33 years. Therefore, the players were highly educated with career experience of 10 years or over in planning and decision making as promising junior leaders of larger organizations.

GAME DIRECTORS

The board of game directors had two functions for running the game. Firstly, the directors were responsible for the operation of the game. Secondly, the board itself produced highly economic, political and military processes as model components. The forms of the models were simulation and heuristics. Table 1 shows the members and the tasks of the board of game directors. The referees conducted themselves in a total simulation with inputs from the accounting system. The three directors probably

conducted themselves in heuristics representing the Emperor's supreme command to the Army and Navy.

Table 1 Gaming Designers and Directors

Name	Position	Rank	Niche
Y. Iimura	Director	Lt. General	Expert on US and USSR
C. Matsuda	Professor	Captain	Expert on US
K. Horiba	Professor	Colonel	Expert on USSR and China

THE PROCEDURES OF PLAY

Figure 1 shows a simple representation of the play phase of the game. The blue government was a team of players with gamed-roles. The chief director assigned one of the graduate students from the private sector to the prime minister. This player was assigned a role completely

Figure 1 Construction of the Game "ENREN"

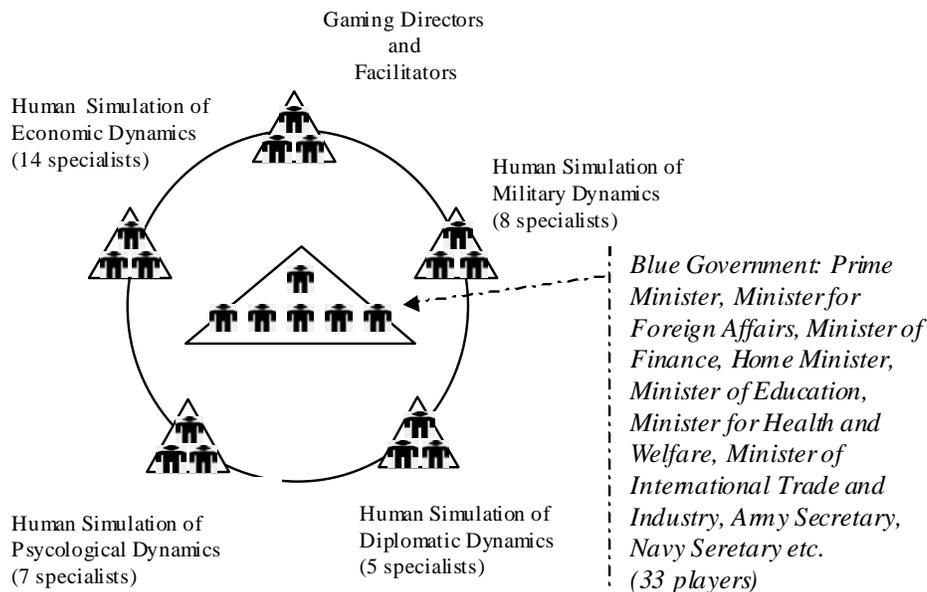


Figure 2 A Gaming Round

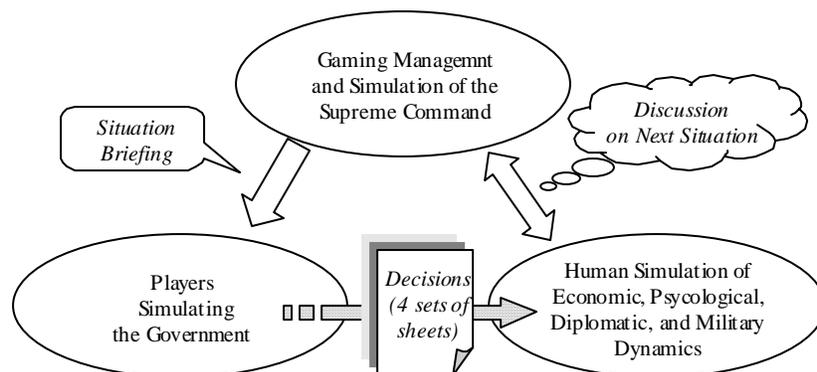


Table 2 Accounting system (Human simulation)

Accounting teams (Judging teams)	Number of specialists	Domains	Number of secretaries
Economic simulation team	14	Economic problems, material mobilization, human resources, food production, transportation, communications, and finance	2
Psychological simulation team	7	Education, thought control, physical education, land security, and media strategy	1
Diplomatic simulation team	5	Diplomacy, the U.S., Europe, South Sea states, and the Soviet Union	1
Military simulation team	8	Military operation, preparedness for land engagement, a preparedness for naval engagement, and r preparedness for air defense	1

different from his profession in order to avoid the negative effects of bureaucracy. Other players generally were assigned their roles related to their real-life profession.

The play consisted of a series of cycles, seven rounds (Figure 2). Each round started with a mini-critique time, probably a couple of hours. The chief game director managed this critique by providing players with the latest situations that developed based on both the outputs of the accounting system and the heuristics of the supreme command.

Following the chief director’s critique the next phase of a round was survey, discussion, and interaction. The output of the phase was a report of decisions. The decisions were processed through one of the four domains of the accounting system according to their administrative authorities with which players were assigned a gamed-role.

ACCOUNTING SYSTEM

The accounting system of the game seemed to be a complex one because it involved 34 specialists. It was a rather complex model because players were supposed to pursue the totality of war planning. A range of domains the human accounting system had to respond to extended to social dynamics as well as military strategies. Table 2 shows that each team of the accounting system had its own domains of responsibility for decisions made by “Ministers.”

ROUNDS OF PLAY

Table 3 shows the steps of the game. Round 1 consisted of assignment of the following personal work given to all of the players: namely, the investigation of the national policy, strategic planning for total warfare, and the judging of situation necessary for the above. In Round 2 the principal organ of “Blue land” was constituted by all of the players and they were required to do the following work: the planning of total war strategies and preparations for the development of total war strategies.

In Round 3 to 9 the players repeatedly participated in the cycles of a gaming round. Each round lasted two or three days for game times or imaginary times, from August

1941 to October 1942. In this sense, the game was an exercise of policy formation for the future.

Table 3 Sequence of Activities

Gaming Round	Real-life time in 1941	Game time (Activity)	Participants
1	June 11 – July 11	(Individual learning)	Players
2	July 12– 30	(Team learning)	Players
3	August 5-7	August 1941	Directors, players, and Judges
4	August 8-10	September 1941	Directors, players, and Judges
5	August 11-13	October 1941	Directors, players, and Judges
6	August 14–15	November 1941	Directors, players, and Judges
7	August 16– 18	December 1941	Directors, players, and Judges
8	August 19– 20	January to March 1942	Directors, players, and Judges
9	August 21– 23	April to October 1942	Directors, players, and Judges
10	August 24– 16	(Oral Debriefing: Endogenous and Exogenous Reviews)	Directors and players
11	August 27– 28	(Oral Debriefing: Exogenous Review)	Directors, players, and the prime minister and the other ministers of the real-life

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			government
12	September - October	(One Month Excursion of Visiting Overseas)	Players
13	Early November	(Team Report Writing with Gamed Role Views)	Players
14	Late November	(Individual Report Writing in a View of their Actual Profession)	Players

EXOGENOUS REVIEW

The tentative report of the debriefing was that Japan could lose a war against the US in a few years because of lack of economic power. The game directors and players gathered in the official residence of the real-life prime minister and presented the report to the real-life prime minister and his real-life cabinet members including the ministers of the Army and Navy in August 27 and 28, 1941. The minister of the Army, who would be appointed prime minister two months later by the Emperor, immediately banned them from stating the contents of the report.

THE OBJECT OF THE GAME

DESIGN CONCEPT

The International Military Tribunal for the Far East took place between 1946 and 1948. During the tribunal the cross examination on ENREN unexpectedly continued for only two days even though the name of the institute, "Total War Research Institute," indicated its concern with the total planning of the Japanese World War II. As a prosecution's witness of the Allied Forces, Kazuo Horiba, who represented the faculty of the institute, testified with the following testimony, which is an exact quote from the English record of the proceedings of the tribunal dated October 29 and 30, 1946.

The aim of the so-called table-top discussions was generally in accord with the education objective of the Institute. It was believed by the Institute that lectures alone were not sufficient in carrying out the aims of the Institute, and for that reason, in order to make more practical the training of the mental faculties, mental efficiency as well as the efficiency of cooperative action, and to develop over-all efficiency in their studies, certain hypothetical conditions were conceived and different branches of the studies -- members belonging to different branches of their studies were permitted on the basis of those hypothetical conditions to work out their specific subject matter; and, therefore -- and then to cooperate with other branches in order to carry into practice theories with respect to cooperative action, and this was felt to be necessary in making the lectures and the studies in the Institute more practical. Those who

participated in these table-top studies or maneuvers would readily understand how -- what kind of hypothetical conditions were conceived for study purposes. These various hypothetical conditions or hypothetical -- or work problems were selected by several members of the Institute and given to the students to work out in all their various ramifications. The aim of these table-top maneuvers or studies were to be found in the fact that given certain hypothetical conditions, the students would, each of them, work out the problem assigned to him; and after making a study, he would announce this to a group meeting of students who were connected with the maneuver or study itself, and there exchange opinions and by repetition of these exercises, it was possible to foster a consciousness of cooperatives effort and the bringing together of minds in order to work out problems cooperatively.

Now, as to why such maneuvers were regarded necessary, I must say that inasmuch as one of the educational aims of the Institute was to promote cooperative thinking and cooperative action, and because the general tendency in the country was divergence of opinions and conflicts between government departments as well as between different private and public organizations, that it was considered highly necessary and essential that cooperative thinking and cooperative action should be fostered by the Institute for permeation outside as well, and, therefore, studies were carried on with this idea in mind.

Interestingly and importantly, Kazuo Horiba called the main phase of ENREN a table-top discussion or maneuver in his testimony. During the two days, a Russian prosecutor pointed out that that was a game. This is therefore a game. The prime purpose of the game was to establish dialogue among players for exchange of opinions. As Kazuo Horiba testified, most importantly this game is communication-oriented. A game is an abstract representation of human-made complex institutions. From a well-known game designer's point of view (Duke, 1981), a game should have twelve basic elements: (1) scenario, (2) pulse, (3) cycle sequence, (4) steps of play, (5) rules, (6) roles, (7) model, (8) decision sequence, (9) accounting system, (10) indicators, (11) symbology, and (12) paraphernalia. Those basic elements, which a game is supposed to consist of, were exhibited in the court proceedings

FROM MAP MANEUVER TO TABLE-TOP MANEUVER

The objectives for this policy exercise game were highly necessary and essential. The pioneers of the gaming school who invented the social game by extracting a gaming frame from the experiences of war gaming thought that the general tendency in Japan was divergence of opinions and conflicts between government departments as well as between different private and public organizations. To best overcome this tendency, the institute tried to foster

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cooperative thinking and cooperative action for permeation outside as well.

The faculty believed that lectures alone were not sufficient in carrying out the objectives of the institute. To achieve more practical training of the mental faculties, mental efficiency as well as the efficiency of cooperative action, and to develop over-all efficiency in students' studies, certain hypothetical conditions and different branches of the studies were to be conceived. Players belonging to different branches of their studies were permitted on the basis of those hypothetical conditions to work out their specific task. A prosecution's witness gave testimony saying "Those who participated in these table-top studies or maneuvers would readily understand how – what kind of hypothetical conditions were conceived for study purposes." In his testimony, the new word, "Table-top maneuver," was used instead of "Map maneuver" to distinguish between two maneuvers. A social game was, therefore, developed from war games in Japan.

The prime purpose of the game was to establish dialogue among players for exchange of opinions. Various hypothetical conditions were selected by several members of the faculty and given to the students to work out in all their various ramifications. The students would, each of them, work out the problem assigned to him and after making a study he would announce this to a group meeting of students who were connected with the game exchanging opinions. By repetition of these rounds, it was possible to foster a consciousness of cooperative efforts and the bringing together of minds in order to work out problems cooperatively.

SERIOUS PLAY

SERIOUS PLAYERS

The players of the game were selected from different sectors. Most of 36 players were governmental officials. Eight of them were from the private sector. Only six players were from the military. Their ages were 30 to 37 years old; with an average of 33 years. It has been discovered that 24 players were law graduates of the University of Tokyo. Another three players were economics graduates of the University of Tokyo. Therefore, the players were highly educated with career experience of 10 years or over in planning and decision making as junior leaders of larger organizations as mentioned above.

After World War II, nearly all the said players attained higher professional positions later. For example, one of them was promoted to become the Governor of the Bank of Japan, which was the role he actually played during the policy exercise game. Another player also succeeded professionally to become the president of Toshiba Corporation, then a giant high-tech company.

The accounting system of the game seemed to be a complex one because it involved 34 specialists. They were serious players as well. It was rather a complex model

because players were supposed to pursue the totality of war planning.

A range of domains the human accounting system had to respond to extended to social processes as well as military strategies. Table 3 (see above) shows that each team of the accounting system had its own domains of responsibility for decisions by serious players.

RESULTS OF THE SERIOUS PLAY

Table 3 (see above) shows the major sequences of activities including the steps of the game. Round 1 consisted of assignment of the following personal work given to all of the players: namely, the investigation of the national policy, strategic planning for total warfare, and the judging of situation necessary for the above. In Round 2 the principle organs of "Blue land" was constituted by all of the players and they were required to do the following work: the planning of total war strategies and preparations for the development of total war strategies.

In Round 3 to 9 the players repeatedly participated in the cycles of a gaming round. Each round lasted two or three days for game times or imaginary times, from August 1941 to October 1942. In this sense, the game was the exercise of policy formation for the future.

Round 10 and 11 were for oral debriefing. The tentative report of the debriefing was that Japan could lose a war against the US in a few years because of lack of economic power. The game directors and players gathered in the official residence of the prime minister and presented the report to the prime minister and his cabinet members including the ministers of the Army and Navy in August 27 and 28, 1941. The minister of the Army, who would be appointed to be the prime minister two months later, immediately banned them from stating the contents of the report.

In Round 12 between mid September and mid October, almost all players (actually 26 civilian players) were organized in three-inspection tour teams visiting Asian regions including military facilities.

Round 13 and 14 were for report-writing debriefing. I discovered a 500-page and letter-size report-type book of all their team-writing reports and individual reports at the national archives in March 2004. Surprisingly, the book contained two pieces of actual game paraphernalia that are letter-size preprinted form used for players to exchange messages in the game-specific language. Right now, their debriefing by writing are being analyzed.

The total courses of the first Japanese gaming simulation probably ended on November 26, 1941.

FURTHER RESEARCH NEEDED

I have long wanted to do research on the war game since I read a short paragraph on it in a booklet distributed by the Center for Multidisciplinary Educational Exercises (known as COMEX) of the University of Southern

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California in 1983-4 when I was a Fulbright young professor at the Institute of Safety and System Management, USC. COMEX provided me the opportunity of observing the METRO-APEX exercise, a regular course for students in public administration (McGinty, 1981).

In the introductory section of the booklet, a brief history of gaming simulation was surveyed. For most people, an acceptable definition in this discipline is that gaming simulation is of human, human-computer and computer simulations of social processes. This definition would emphasize the significance of a difference between a war operation game and a social or serious game. The brief history explained that the Japanese war game run in 1941 was a war game that Japan relied heavily on in those days and that many should see the latest ancestor of social or serious games.

This paper is not only a historical review on the first Japanese gaming simulation or policy exercise game but can also serve as a historical reference for early research in gaming science. However, even for Japanese researchers, only the same materials on this game are available for review. Since I started to read carefully and in detail the record of the proceeding of the International Military Tribunal for the Far East, in particular, numbered 100 and 101 dated 1946, I have been thinking of what gaming science should be. Now I believe that war gamers were more interested in the war game than the social game so that they placed an emphasis on the topics of war games. As a result the first social game, at least in Japan, has been ignored both historically and academically. Unfortunately this research is a time-consuming task and not possible to be completed because almost all materials relating to this game were incinerated as a matter of course. The major sources of literature, probably the most reliable, are the proceedings of the international military tribunal for the Far East. Fortunately, I am not a historian but a gaming scientist capable of rebuilding a logical structure from game fragments with its many parts missing.

Actually, the ENREN was played by about 33 young promising elites (others probably got drafted during the game) as graduate students to pursue measures in the expectation of war, considering economic, educational, financial, and psychological factors more seriously than a military factor. Surprisingly enough, the result of the debriefing after the serious play was that Japan could lose a war against the US in a few years because of lack of economic power. This is an unusual case of simulated predictions which was proven correct later. A social simulation that predicts a worst scenario normally causes decision makers to avoid its happening by changing their own policy.

REMARKS

By now, it has been discovered that the school designed and constructed four policy games and run three of

them for four consecutive years. The details of those games are still fragmentary because we are still in the process of retrieving impounded game materials from the US National Archives. Besides, People who participated in the design and construction of the games have passed away.

Most recently, I have just found out that another economic policy game was conducted in 1943 by the private social research institute (Iguchi, 2003: 188-190) established by Yoshisuke Ayukawa, the founder of the NISSAN Automobile Manufacturing Conglomerate. During the era of the recovery of Japanese industry in the 1960s and 1970s, NISSAN was one of the biggest corporations and leading user of computer-based business games for training their employees. He adopted the basic idea and structure of the ENREN to his own economic policy game for predicting how Japanese industry would recover after the end of the war. I have just started to analyze the second Japanese gaming simulation. Probably, this second social game should be the first economic-business game developed in Japan. He tried to mix the first economic-business game with the policy game but the Japanese military government did not permit him to pursue his ambition because the result of the gaming was expected to be against the total war policy.

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