

THE NATURAL DEBRIEFING APPROACH: A CASE IN A SIMPLE BUSINESS GAME PURSUED FOR PERFECT COMMUNICATIONS

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ABSTRACT

The typical business game is usually a competitive world involving several teams. These teams usually have the same organizational structure. Business games themselves can be categorized into computer-modeled complex games and non-computer-based simple games. An example of the simple business game is the well known "Beer Game". "Paper Plane Game" is another one. Compared with complex games, the simple game needs better debriefing to make it a more successful than the complex ones, but the methodology of debriefing in gaming needs improvement in structure. This presentation will introduce a structured debriefing frame called the Natural Debriefing Approach more useful to simple business games.

INTRODUCTION

The most important recourse in the knowledge society will be definitely organized human beings. The most vital organization is a top management team. The assumptions, opinions, and objectives of people and their organizations will be primary facts for future business gaming research.

Peter F. Drucker (1985:510) pointed out that "scientific" is not synonymous with quantification. He teaches that "scientific" presupposes a rational definition of the universe of science as well as the formulation of basic assumptions that are appropriate, consistent, and comprehensive. He insisted that the first task for management science is to define the specific nature of its subject matter. To gaming researchers, what he wanted to emphasize seems to be that this should include as a basic definition the insight that the business pyramid is made up of human being with some of them having power over the rest.

His thoughts above on management science have had an influence on not only our business game research but also our gaming research in general. As gaming simulation should be understood to be human or human-computer simulation of social processes, our approach for gaming research focuses on communication, information sharing, knowledge creation, and decision-making for teamwork in a small group.

Though the authors' research for the science of gaming simulations is still in its embryonic stage, this paper will present a series of debriefing steps rather than utterances and action in the play of a game without using built-in computer simulations in a structure guiding the conversational learning process of a gaming team. This empirical presentation will show the current state of teamwork activity of players in business gaming for perfect communications.

In the following sections, the authors will address a simple business gaming in order to define what gaming is universally in line with Drucker's thoughts on management.

Finally, "natural debriefing" will be briefly described as a new agenda for gaming research.

THE PERFECT COMMUNICATIONS

Duke (1974:55&76) defined gaming as a language of gestalt communication mode. Designing a game requires generating the conceptual map as the organ of the game. The conceptual map is a designer-perceived model of the complex society. The purpose of the game may be to assist some research team in the articulation of the system. In the game run, they should experience communication at least whenever realizing that they communicate differently with the same model.

The most perfect communications may be purely "shared experiences," without any logic whatever (Drucker, 1985:483-493). Communication is best known to be perception. This means that one can communicate only in the recipient's language. As the terms have to be experience-based, they will not be able to receive terms without their own experience.

His conclusions on managerial communications are: communication requires shared experiences; communication works only from one member to another; communication is the mode of organization.

The organizational structure of a game has to be a team. Because in order to establish the sharing of experiences during communication among players about a topic, which is complex and future-oriented, they have to be organized into a team of limited number of members.

Drucker's thoughts on the team principles (1985:564-569) are useful for us in the analysis of the management by gaming players. For example, he pointed out that there is usually a team

leader, as a permanent appointment. Even so, leadership at any one time changes according to the specific stage in its progress. An important limitation of the team structure is size, which is from seven to fifteen at maximum. If the size of a team gets bigger, its strengths, such as flexibility and the sense of responsibility of the members are reduced.

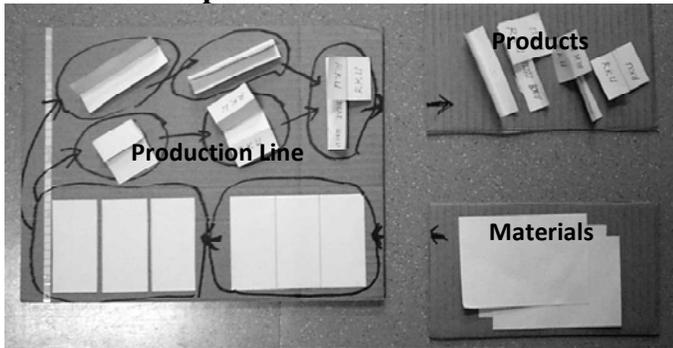
According to the theory of communications, at least two people can team up and they can play many roles with another in a wide diversity of communication, thus forming a very complex team. According to the theory of group dynamics, three people produce multiple communication pathways and the possibility of subgroups in the team. The biggest team may be from fifteen to 25 members. Teams of 25 are teams of teams with two to nine members. The biggest team of teams could range up to 81 members who are belonging to nine smaller teams.

As mentioned above, the size and structure of teams are very dynamic within some extent. A problem is how business gaming treat this dynamics with gaming design methodology.

THE SIMPLE BUSINESS GAME

For the object of this research, a simple business game is needed. The authors' choice were the BEER GAME (Sterman, 1989) and the paper plane game, both of which were used by the original game called "Planes or burst game", designed by Legg (1994). The authors are experimenting on both games with the natural debriefing approach. In this presentation, the authors employ the PAPER PLANE GAME as a business game, because this game consists of eight gamed roles more dynamic in debriefing than three or four gamed roles of the beer game.

Figure 1
Paper Plane Game Model



This paper plane game is originally an operational game that teaches students or workers optimized production technology

principles by playing work at the eight steps of the process flow of a manufacturing system. The input is A4-size papers as raw material and the output are simply two pieces of folded paper with particular marks on them and stapled together in an Origami-made airplane. Figure 1 shows a paper plane game mode (approximately 20cm x 40cm), which the authors use for briefing the game for players.

The rule of the game is easily understood. The time of the run varies between 45 and 120 minutes according to the level of the knowledge of players. The authors have found that it takes more time for higher management people to play it than operations people. The authors will analyze the difference as follows.

Even though this game was designed as an optimized production-oriented operational game, it has four characteristics that suit the purpose of this paper: (1) highly abstracted level, (2) planning capability, (3) different roles, and (4) real manufacturing involving the players as human resources. The players of the game are expected to play alternately in both levels of management and operation. In other words, they will play as members of a functional organization as well as those of a team.

When one of the authors (Nakamura, 1999) participated in the game for the first time in ISAGA1991, she was very disappointed in the way the game was played. The disappointment was caused by one of the participants, who gave the solution to the game to other participants before it was run. He seemed to have enough scientific knowledge to run the game efficiently by finding the bottleneck of the process of the production model. He instructed the participants on how to play the game. As a result, all the participants except him were forced to work like machines in an operational mode. Even then, this game can be used not only as an optimized production-oriented operation but also as a top-management game with the natural debriefing approach.

THE PROCEDURES OF PLAY

The authors organized two gaming teams consisting of eight participants who had several years experience in Japanese management, not college students. The typical steps of the gaming are shown in Table 1.

INITIAL INERTIAL PHASE

The initial inertial phase runs of the paper plan game are the following. For further information, see Legg (1999).

Table 1
Steps of the Gaming

| Phases | Initial inertia | Playing | Debriefing |
|--------------|--|---|--|
| Period | 60 min. | 15 min. | 45 min. |
| Organizatoin | Team | Functional structure | Team |
| Tasks | Organizing a team, understanding the conceptual map, sharing players' knowledge relating to the problem, pre-play practicing, and making decisions | Working on their own jobs as role players, noticing wrong decisions, and adjusting for better decisions | Discussing with an endogenous review and then with an exogenous review |

In Inertia 1, players organize themselves and choose the leader. They then share their own knowledge relating to the game.

In Inertia 2, they arrive at the conclusion that the bottleneck consumes the longest processing time. This is given 30 seconds per unit in the conceptual map. In some cases, all the players work out this operation once in order to measure the actual time required of the operation and to find out who is the best worker in terms of less time for this operation.

In Inertia 3, the leader takes the initiative in making all the players exchange understanding of the game from their own game-role perspective. As a result, a total vision of the game is established and shared.

In Inertia 4, which is a pre-play practice phase of five minutes, all the players move to a simulated manufacturing site. They try to examine the whole site.

In Inertia 5, in some cases, the leader measures the running time of the whole production process while the other players are working as assigned.

In Inertia 6, just after the pre-play practice phase, the leader often realizes that he cannot take leadership during production because he realizes that he is busier than he expected. As a result, the shared understandings are partly reviewed.

PLAYING

The typical playing phase runs of the paper plan game are the following. For further information, see Legg (1999) again.

In play 1, players start very quietly at the beginning of the 15-minute production, where the leader in some cases, brings materials in bulk according to the production plan for efficiency. As a case of this presentation, Figure 2 shows players playing their gamed roles.

Figure 2
Playing Gamed Roles



In Play 2, it seems that there are usually communications between members of the group in the initial part of the production time.

In Play 3, the players start to use voice communications as they realize how the game runs practically.

In Play 4, the leader counts the volume of production for confirmation when its planned volume is almost achieved.

In Play 5, as they estimate that the remaining time is just a few minutes, the leader usually brings another sheet of material to continue the production. As a case of this presentation, Figure 1 shows players counting paper planes they have just “manufactured.”

Figure 3
Counting Paper Planes Manufactured



CONVENTIONAL DEBRIEFING

To make the natural debriefing approach clear to the readers, a conventional debriefing is briefly reviewed here. The following was an instance of a conventional debriefing, which also was a rare case of a very productive team played Paper Plane Game as the players were all experts or executives of corporations. College students without social experience would never do this by themselves.

In Debriefing 1, a situation necessitated the involvement of the facilitator, while all the players had involved themselves deeply in operational activities, to escape from deep mental concentration on details.

In Debriefing 2, the sub leader took the leadership in kicking off debriefing with hand gesture. Their debriefing needed as less involvement of the facilitator as possible.

In Debriefing 3, there were non-verbal languages used for effective communications in addition to oral debriefing. However, it seemed that the leader would not share experiences with others, sitting only to see and not to hear.

In Debriefing 4, the second sub leader continued to exchange experiences with others with a sign language. Each of the players could understand what his/her hand gesture meant as Japanese management professionals. See Ichikawa & Nakamura (2004) for further information.

In Debriefing 5, the experience-based communications lasted for five minutes before the end of the all game.

THE SCIENCE OF GAMING

Gaming is an information space where we practice the reform, innovation of a normative model. In this space, players get the perception of other persons, the recognition, the information of the action and aim at the movement toward their subjective equilibrium as they have the information space in

common. Therefore, each player lets oneself educate or transform another person. In the process, he also educates or transforms himself. In gaming, one may call this act “learning.” Gaming needs three processes: showing recognition mutually, sharing new experience based on the dialogues that accepted a role, and creating knowledge by dialogue and conversation.

From both practice and research of gaming, the result that a player lets a knowledge system of the self transform him is required. As for these, the establishment of communication becomes the premise. Baker et al. (2002:1-13) also present the argument of the definitions about “dialogue and conversation” for reviewing the establishment of communication from an experience learning theory. For the etymology, the conversation extends from symbiosis / combination to sexual intercourse. The dialogue extends to the play from confrontation / opposition. Implication becomes strong in a dispute in the truth pursuit process when dialogue is compared with conversation.

In fact, we did not think about such a viewpoint deeply. In gaming, all facilitators want to aim at the success of debriefing. But it is connected directly with the success or failure of conversation learning among players. If conversation learning does not happen, debriefing is impossible. When one does research on a theory of gaming from this point of view, the research of debriefing is required. When the authors put an important point in debriefing with “game design” equally, the authors propose to call it “gaming design” by this report.

The simple game tends to force a beginner to childish behavior. When the simple game is designed mainly with an emphasis on debriefing, the “the childish nature” mind set is possible for a student to some extent. Practically however, game designers tend to take in concrete detail the representation of the game, and many learning games intended for a beginner are information-oriented. Because the game shows the thing which is near to the reality about information, this will be effective in the point of view of education.

The simple game has possibility to give an expert an occasion to show a refined thought as explained in the previous section, but has danger to cause a beginner express childish characteristics. Unfortunately, there is some doubt whether there is not a problem at all about a complex game. In a case of the complex game, expert players will show good behavior in cost-performance. Contrarily, beginners will show usually bad behavior in the preparation for play. However, in the involvement of the expert players, debriefing phase is much more valued by themselves in a simple game when compared with a complex game. Their topics in debriefing conversation have more variety than a complex game. At all events, the success or failure of debriefing is connected directly to the success or failure of both professional gaming and educational gaming.

A player (whether an expert or a beginner) begins to imagine the world of the self, but this feature is basically a common purpose for both the simple and complex games. Designing from this point of view, the problem is to what extent of the world should be coped with in gaming. A design of the structure of debriefing, which is common to both professional gaming and educational gaming, is necessary for a gaming system, especially with a simple game in it, to have a debriefing phase as its major purpose rather than playing itself.

A CASE OF THE NATURAL DEBRIEFING APPROACH

INTRODUCTION AND EXERCISE FRAMES

As in Figure 4, the natural debriefing approach consists of the introduction frame, the exercise frame and the reflection frame. The reflection frame is in turn divided into “Dialogue between the players of the same role,” “Conversation in the team,” “Dialogue between the teams,” “Conversation by all players,” and “Dialogue and Conversation through the virtual space.” Figure 4 shows a total gaming design discussed below with the natural debriefing approach.

Needless to say, the design of an ice-breaking game at the start of the natural debriefing approach is essential. Because some kind of activity by the group or team is demanded basically at least, it is necessary to design an introduction play to contribute in the activation of the small organization. It is called “Introduction Frame.”

The next frame is the main body of gaming called “Exercise Frame.” For complex games, this frame is the most important frame, because the game itself contains what business contents players should follow through playing step by step. In the natural debriefing approach, the exercise frame with a simple game run is only midway towards real world problems.

In gaming, the importance of debriefing is always pointed out in the conferences of gaming simulation. It is not easy to let debriefing for players and by the players succeed freely without facilitators showing only minimum presence.

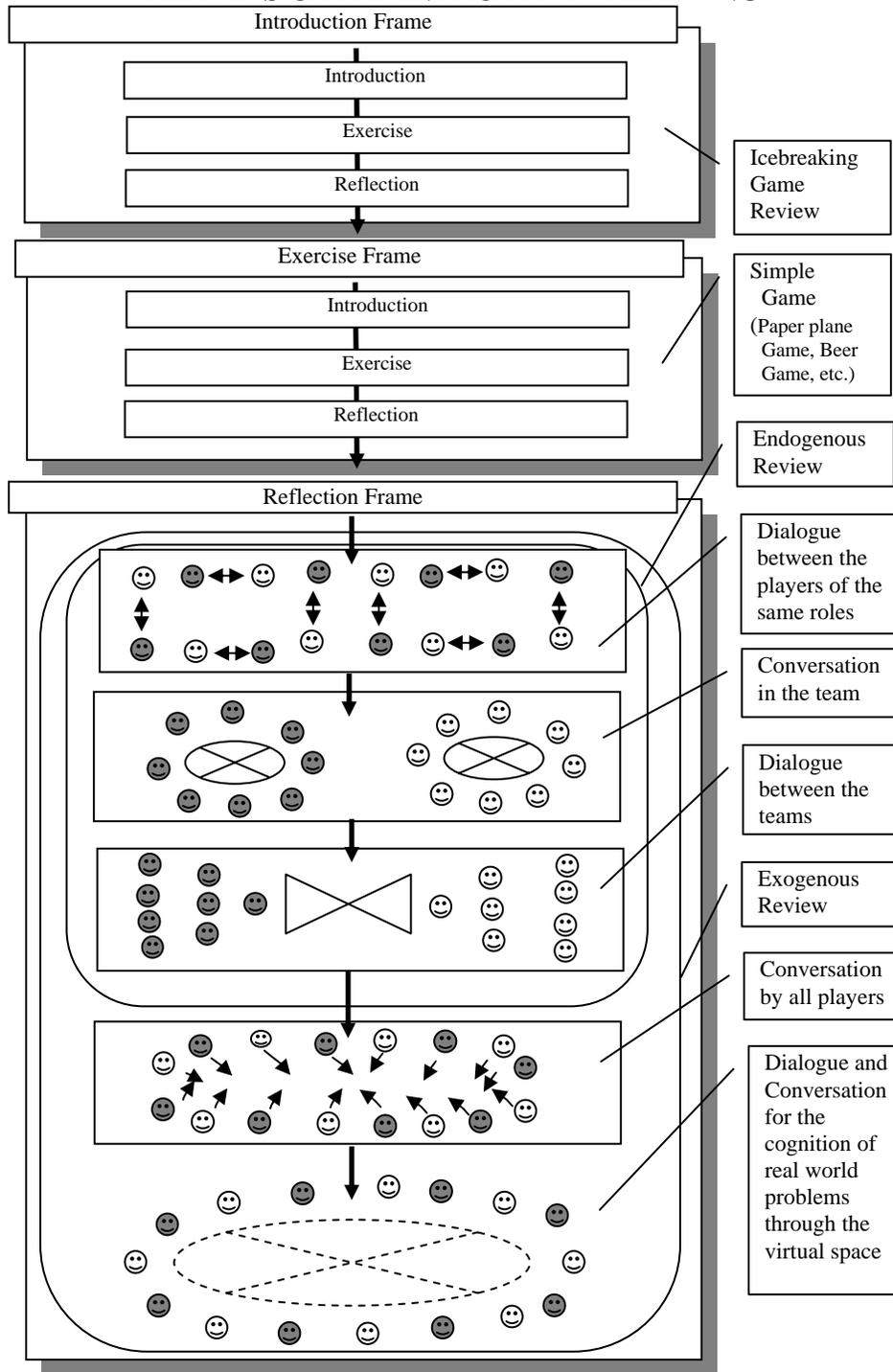
For the present, the authors carry out gaming repeatedly while they try to pursue the cooperation of the experts such as companies, and changing a gaming site with participants for doing research on the science of debriefing. Gaming usually continues by involving plural games sequentially. Concerning debriefing, it is often said that the authors have experienced being worn out, usually at the early stage of debriefing. The facilitator eventually was forced to guide it with considerable clarity, and, in some cases, it was necessary for him/her to suggest correct answers many times thought debriefing. In a process to do research gaming in this way, the authors would notice that there is a solution called debriefing design. For instance, at the early stage of gaming research, the authors remained in an approach method to say “*Let's start debriefing, everybody! This debriefing is so important in gaming that you exchange willingly your reviews with each other.*” Through experiencing many cases of conventional debriefing, the authors have come to notice eventually that there are certain patterns in relatively better debriefing cases if recorded dialogue and conversation of the players are analyzed.

The following will pay attention only to the main reflection frame of the natural debriefing approach.

THE ULTIMATE GOAL OF GAMING

The ultimate goal of debriefing might be a challenge provision. Duke (1974: 130-131) stated that debriefing includes

Figure 4
FRAMES OF THE NATURAL DEBRIEFING



an endogenous review, an exogenous comparison, and a challenge provision. The endogenous review should permit a statement about the systems, models, linkages, scenario and other components of the game. The challenge provision should ensure that any player who has serious doubts has an opportunity to express the player's challenge and offer alternatives. The exogenous review should focus the player's attention on the real-world problem. In the frames of the natural debriefing approach, the three frames, "Dialogue among the

players of the same role," "Conversation in the team," and "Dialogue between the teams" are provided for the endogenous review. The two frames, "Conversation by all players" and "Dialogue and conversation through the virtual space" are provided for the exogenous review. The challenge provision proceeds practically through the virtual space.

DIALOGUE AMONG THE PLAYERS OF THE SAME ROLES

This is a dialogue frame as a communication mode. Figure 5 shows this instance.

It is the period when a pair of players of the same game role from the different teams exchange pieces of information from their own teams. Independence and the aggregation of active information exchange are observed. It seems that they share a common viewpoint based on the same game role.

Figure 5
Dialogue among the Players of the Same Roles



CONVERSATION IN THE TEAM

This is a conversation frame as a communication mode. Figure 6 shows this instance.

Because all players can reproduce the activity contents of the other group in hyperspace or with multiple views, they can grasp the relative position of their own team. Besides, the information that each player perceives from other team player containing many slight differences is abundant and noticeable. It seems that every piece of multi-reviewed information that the team organizes activates necessity of additional new information and conversation in the team for all the players to enable bird's-eye analysis on the team play.

Figure 6
Conversation in the Team



DIALOGUE BETWEEN THE TEAMS

This is a dialogue frame again as a communication mode. Figure 7 shows this instance.

To present the activity of the one's own team for simulated public, all information obtained in the previous reflection sub frames are to be put into an oral language of logical and sequential structure. In this situation, the counterpart team can point out to the other team about contradiction of the logic or a leap into a relatively easy way.

Here, it is the process of an endogenous review. A scene entering an exogenous review at the previous frames can be observed, but it is only an expression as an individual player.

Figure 7
Dialogue between the Teams



CONVERSATION BY ALL PLAYERS

This is a conversation frame again as a communication mode. Figure 8 shows this instance.

An exogenous review needs utterance act by every player. The real world problem should now commence, which involves an act to recognize the object which is peculiar to an individual. "Dialogue among the same roles," "Conversation in the team," and "Dialogue between the teams" seem to be posted in the multi dimension among all players. Therefore, the presentation of each player lasts quite longer than expected in the conventional debriefing.

Figure 8
Conversation by All Players



