FRAME GAMES
An Evaluation

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This essay deals with a special type of games called "frame games." It is organized according to the following outline:

(1) the concept of frame game
(2) an overview of frame games evaluated in this chapter
(3) an analysis and comparison of the selected frame games on the basis of eight important characteristics
(4) overall evaluations of selected frame games
(5) advantages and disadvantages of frame games

The content and organization of this essay reflect its prime purpose: to make you a more informed selector and user of frame games. Specifically, these are the objectives of the essay in terms of what you should be able to do:

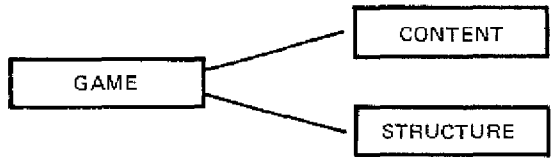
(1) explain the concept of frame games and discriminate a frame game from other similar related activities,
(2) describe a few currently available frame games;
(3) list and describe different attributes of a frame game; Apply this knowledge to analyze a frame game and to make a more discriminating choice of frame games to fulfill your needs;
(4) describe some of the advantages and disadvantages of using frame games so you can accentuate the former and reduce the latter.

THE CONCEPT OF FRAME GAME

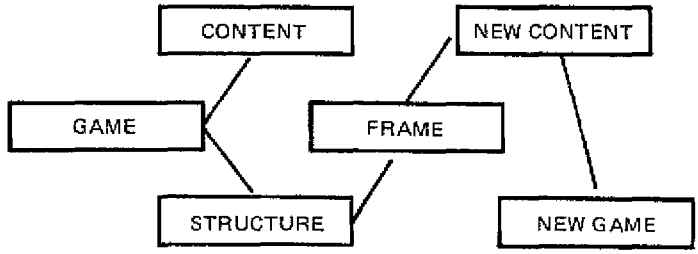
The concept of frame game is fairly easy to explain. In fact, you probably have had some experience with this concept. Here are a few examples which illustrate frame games in action.

- A grade-school teacher proudly demonstrates innumerable variations of Bingo games designed to teach addition facts, matching of words with pictures, initial consonants, and the like.
- A social studies teacher uses a *Monopoly* like game to teach the process through which a legislative bill becomes a law or about life in communist countries.
- A teacher of Spanish uses a vocabulary game that looks suspiciously like the dictionary game you played at John's party last week.
- You purchase a slickly packaged chemistry game only to realize that it is nothing more than a glossy modification of *Old Maid*, which you used to play as a child.

If you take any game, you can usually analyze it into two major divisions: content and structure.



As an example, let us look at the popular game *Rummy*. The content of Rummy involves cards that vary in two different ways: suits and values. The structure involves a number of rules for initiating, continuing, and terminating the play of the game and includes the fundamental rule for collecting sets of cards that have the same suit and a sequence of values or the same value but different suits. By dislodging the original content you can identify the *frame* of the game. By loading new content on this frame, you create a new game that can help you achieve your own specific objectives:



To give an example of how this can be done, let us assume that you are a high school teacher of English. Let us say you have figured out that the content-free frame of Rummy involves the creation of sets from elements that vary along two dimensions. You therefore decide to create new content by typing excerpts from English literature from six different

Editor's Note: Listings for all the games discussed in this essay are in the Frame Games Section, except for *Encapsulation*, which is in the Communication Section, and *Making a Change*, in the Community Issues Section.

periods on blank index cards. You also decide to use four different forms of writing for each period. So now you have created your own *Literature Rummy* in which players attempt to collect sets of cards from the *same* period with *different* forms or vice versa.

This is definitely a crude example, and we hope that we have not inspired you to create endless variations of Rummy to teach everything to everyone. But it does illustrate the process of frame gaming and the fundamental axiom that all games are frame games. However, for the purposes of this essay we use a more restrictive definition of frame games. We define frame games as *those games that are deliberately developed to provide a content-free instructional structure on which can be loaded locally relevant content.*

Here is an actual frame game (reprinted with the kind permission of the publisher, Educational Technology Publications, 1978) from a longer article by Thiagarajan that illustrates the critical attributes of our definition of frame games.

The Press Conference Game

Number of players: Ten to thirty

Approximate Time Requirement: Two to three hours

Materials: Index cards of four or five different colors, pencils

Step-by-Step Directions for Play:

(1) *Needs Analysis.* Before the play of the game, divide the content of your lecture into a convenient number of subtopics. Although the logic of the content should determine the exact nature of these subtopics, you will have to take these two factors into consideration.

- The game lasts longer if you have more subtopics. If you have only limited time, use fewer subtopics.
- The number of subtopics is also the number of teams. Choose the number so that your teams do not have too many or too few members to permit collaborative learning.

In general, three to five subtopics result in effective play.

When the players arrive, announce the topic and the subtopics. Give each player index cards of as many different colors as there are subtopics. Let's assume that you have four subtopics. Each player receives a blue, white, pink, and yellow index card. Explain that each color stands for one of the subtopics and specify which color goes with which subtopic. Ask the players to write one or more questions on each subtopic on the appropriate color-coded card. These are questions for which the player would like an answer before the end of the game.

(2) *Team Work.* After about five minutes, check to see if all players have finished writing their questions. Collect the question cards. Divide the players into as many teams as there are subtopics. Give each team all the cards of a specific color. Ask the teams to carefully review the questions, eliminate redundant ones, add more if necessary, and organize the questions in a logical order. Leave the players alone for about fifteen minutes.

(3) *Press Conference.* Station yourself behind a real or simulated podium and announce that you are an international authority on the topic and that you are now ready to conduct a press conference. Randomly select one team to be the inquisitive reporters. They have fifteen minutes to question you on their subtopic, using the edited list of questions in any way they want to. Tell the team to cut you off politely if your answers are too lengthy or rambling because of the time limit. Warn the other teams to listen carefully to the questions and answers and to take copious notes because their score in the game will depend on how effectively they store, retrieve, and process the information.

(4) *Information Processing.* At the end of the allotted time, stop the press conference. Ask the teams to prepare a succinct summary of the main points made by the expert. This (legibly) written summary is to be produced within fifteen minutes. The questioning team does not prepare such a summary. Instead, it designs a checklist for evaluating the summaries from the other teams on the basis of such criteria as comprehensiveness, brevity, inclusion of main points, and elimination of trivial points.

(5) *Reporting and Ranking.* Collect the summary reports from all teams. Read aloud each summary without identifying the team that produced it. After reading all the reports, ask the evaluating team to rank order the summaries and to divulge secretly their decisions to you. Give the score of three points to the top-ranked summary, two to the next one, and one point to the third one. Write down these scores on the summary sheets but do not announce them yet.

(6) *Recycling and Concluding.* Repeat the previous three steps as often as needed so that every team plays the role of the reporters probing you on the other subtopics. At the end of the last round, let each team retrieve its summary reports and add up the scores. Declare the team with the highest total score to be the winners, but do not make a big fuss about it. Conduct a debriefing session and respond to any leftover questions from individual players.

This sample frame game has been developed expressly to provide a content-free instructional structure on which a wide range of new content can be loaded.

OVERVIEW OF THE FRAME GAMES ANALYZED

This essay provides a comparative analysis of fourteen frame games. All of these fourteen have been selected on the basis of the following criteria.

- These frame games are currently available in written form from their designers or publishers.
- These frame games are fairly inexpensive: None of them costs more than $35, most of them cost less than $10. Some have been published in professional periodicals that are easily accessible to the potential user.
- These frame games are selected to represent a large number of game designers. It is true that four of the frame games are of our own creation, but there being two of us, we have each separately made our evaluative comments of the other's materials.
- The selected frame games represent a broad range of levels of complexity. They are suitable for a wide range of players

from upper elementary school through adult, with an emphasis on the adult end.

• We have selected only those games that we have ourselves run with a group of players or in which we have participated as players. Because of this requirement, we are unable to include an excellent set of frame games by Cathy Greenblat and Richard Duke, we were not able to get hold of copies of these games for player testing.

Given below are brief descriptions of the fourteen frame games we have selected for our comparative evaluation These descriptions highlight the content-free nature of the games and provide the base for their analysis in the later sections of this chapter.

Confrontation

During each round, players receive a card that specifies a confrontation situation and assigns roles. Two players are in adversary roles and the third is a mediator. Adversary players choose one of five possible positions on the issue and compare their choices. Adversaries discuss/debate their positions and with the help of the mediator reach a common ground. They exchange poker chips depending on the shift from their initial positions.

Encapsulation

This frame game's materials come with six different content area adaptation kits: labor versus management, black versus white, affluent versus deprived, career versus homemaking, student versus teacher, and parent versus child. The two primary players assume adversary roles in a culture-clash simulation. They sit across from each other with their bias boards, gradually revealing how they perceive themselves and each other. They attempt to resolve their conflicts through a conference that is mediated by a facilitator. Each adversary is also under the influence of peer group members who keep sending notes imploring the adversary not to compromise. There are also participant and nonparticipant observers. In addition, there is a structured debriefing session at the end of the conference.

Facts in Five

Players receive a playcard with a five-by-five matrix that has different categories along the columns and letters of the alphabet along the rows. Players fill each cell of the matrix with a key word beginning with the specified letter that fits the appropriate category. Players' words are scored with extra points for originality.

GAMEgame IV

Each team creates a list of five important items related to a selected theme. A common list is created by the game leader. Teams secretly write down their top choice from the common list and are rewarded for reaching consensus. This procedure is repeated until the top five items are identified.

GAMEgame VI

The game leader prepares cards with individual opinions about a topic or an issue. Players write four personal opinions on blank cards. These cards are randomly distributed to all players. Individual players exchange opinion cards at a discard table and with each other. They form coalitions with others of similar opinions and reduce their total number of cards to five. Each group writes a summary statement of its philosophic stance and selects an appropriate name for itself.

Making a Change

During the first session, members of each team select a problem and within that team evaluate each other's problems, identify resisting and encouraging forces, and draw up a list of questions to be answered about the problem. During the second session, each team completes the listing of significant forces and shares it with another team. Using structured forms, teams provide feedback for each other. The same procedure is applied preparing a suitable plan of action. The revised plan of action becomes the starting point for making a change.

Planning Exercise

A problem is presented to all teams. One team is given the role of evaluators; all others have to create a solution to the problem. The evaluation team develops and shares criteria for judging solutions. Each team presents its solution to the evaluation team, which provides appropriate feedback. During the rebuttal phase, each team clarifies any misunderstandings and summarizes the strengths and weaknesses of the solution from other teams. All strong points are consolidated into a superplan.

Policy Negotiations

Three teachers and three school board members are engaged in negotiating a large number of possible issues. Other players represent social agencies and newspapers. Each core member has certain influence points that can be used in any of the following four ways during each round: (1) to vote on a specific issue on top of the agenda, (2) to move another agenda item toward the top, (3) to acquire more prestige in the player's own constituency, and (4) to store the influence with a social agency. Outcomes of each round affect the prestige of each player, which in turn affects the future rounds of the game.

Press Conference Game

See the description of this game in an earlier discussion.

Pro's and Con's

Players decide individually to agree, disagree, or remain neutral about eight issues listed on a card. The initial votes are recorded on a score sheet. Issues are arranged by the players in order of priority and each issue is discussed for ten to fifteen minutes in a specific role. (Each player is provided with a

flipcard packet that specifies the positive, negative, or facilitative role.) At the conclusion of all discussions, there is another round of recording agreements, disagreements, and neutral stands toward the issues. This is followed by a structured debriefing session.

SciFi

Each team receives an envelope with a problem written on its face. The team writes a solution on an index card, puts it in the envelope, and passes the envelope to the next team. This procedure is repeated until the problem envelopes return to the original teams. Teams remove all solutions and rank them from the best to the worst. The team that contributed the largest number of "best" solutions wins the game.

System I

The two axes of the information display grid represent two dimensions in any given subject area. The tiles contain data that can be fitted into this grid. Players attempt to place their tiles in appropriate positions on the grid. Each player has a partial list of correct answers, and, therefore, players verify the correctness and give score points to each other.

Teams-Games-Tournament

T-G-T is a tournament structure that accommodates any instructional game. Each team has four players, one above average, two average, and one below average. Within each team, players help each other, tutoring the weaker ones. Once a week players compete with each other, not as one team against the other, but as players of approximately equal ability against each other. Winners are bumped up to meet tougher players the following week; losers are matched with less-skilled ones. Scores are converted into tournament points and fed back to the players.

They Shoot Marbles, Don't They?

Five core players participate in this game, which begins with very few rules and adds more, created by the players themselves. During each round, there is a bargaining session and a shooting session. In the bargaining session, players form coalitions to divide up the pot of marbles. During the shooting session, they shoot marbles, attempting to hit job marbles while avoiding the trouble marbles. Players who do not belong to the coalition also attempt to knock down a wooden tower and thus nullify the agreement. These core players are incorporated into a larger infrastructure which includes the police, the court, and government officials.

A COMPARISON OF FRAME GAMES

This section analyzes the fourteen frame games and compares them on the basis of nine critical attributes. The organization of this section uses the following sequence:

- a description of a critical characteristic of frame games
- illustrative examples from selected frame games
- a table comparing the selected characteristics of the fourteen frame games

Loadability

The most unique feature of frame games is the ease with which a variety of new content can be loaded onto the stable structure. Before loading the new content, the old one has to be unloaded. We use the term *loadability* to refer to the process of both unloading the old content and loading the new one.

Some frame games come with no content at all in their original version. Other things being equal, this *skeletal* frame game has the highest loadability because there is no need to unload anything. *Press Conference* and *System I* are examples of this kind of structure with no content showing.

Encapsulation and *Pro's and Con's* are examples of another type of loadability in which the basic game structure comes prepackaged with alternative contents. The rules and the equipment for *alternative-contents* frame games can be used to accommodate different contents supplied by the developer. Following the model, the game user can create the user's own new content for loading.

Sometimes a frame game appears in *alternative versions*, each with its own content. The game user can compare these versions, identify the stable structure and varying content, and proceed to unload the old content and then reload with the new. For example, *GAMEgame IV* has appeared in many different versions: *Make Policy, Not Coffee* (Frick, 1974) deals with the status of women, *Afar* (Thiagarajan, 1976) deals with future forecasting; *Indicator Hunt* (Thiagarajan, 1974b) deals with the analysis of affective educational goals; *Energy Resources Game* (Thiagarajan, 1974a) deals with the conservation of energy; and *Policy Council Game* (Stolovitch and Thiagarajan, 1979) deals with the problems of hunger in developing countries.

Some frame games are presented in a single version with a *sample content*. However, the developer makes the basic structure of the game explicit and comments on its use as a frame. For example, *GAMEgame VI* is presented as a game for exploring people's opinions toward the use of simulations and games. The rules of the game are presented in general terms and illustrated through sample play related to the content. The author also comments on the use of the game structure to explore similar instructional topics.

Some complex frame games become confusingly abstract when the developer attempts to describe it either in a skeletal fashion or even with sample content. These games have to be played for one or two rounds before the game leader and the players become familiar with its mechanics. They can then cooperatively redesign the game by loading locally relevant content (while making necessary changes to the rules). Goodman is the leading exponent of this type of *priming game* approach to frame games. Both *They Shoot Marbles, Don't They?* and *Policy Negotiations* are deliberately designed to be redesigned by players.

TABLE 1 Comparison of the Loadability of Selected Frame Games

Frame Game	Skeletal	Alternative Contents	Alternative Versions	Sample Content	Priming Game	Recycle
Confrontation			X	X		
Encapsulation		X				
Facts in Five		X				
GAMEgame IV			X	X		
GAMEgame VI			X	X		
Making a Change	X	X				X
Planning Exercise	X	X				X
Policy Negotiations				X	X	
Press Conference	X					
Pro's and Con's	X	X				
SciFi	X			X		
System 1	X	X				
Teams-Games-Tournament	X					
They Shoot Marbles	X				X	

Finally, many frame games get automatically loaded with new content in the process of playing them for the first time. Twelker's games—*Planning Exercise* and *Making a Change*—illustrate this recycling approach to loadability. In the former, for example, players begin with a problem and evaluate solutions. The selected solution can then become the starting problem for the replay of the game.

Table 1 indicates which forms of loadability are exemplified by each of the fourteen selected frame games.

Loader

Related to the loadability of a frame game is the question of who does the loading. Although in the last analysis all frame games permit loading by the user of the game, there are three basic types of people (and various combinations) who may load the game.

- *Loading by the game developer.* The frame game *Encapsulation* is an example of a game which comes with "factory-loaded" content. With this particular game, there are actually six different loads (labor and management, black and white, affluent and deprived, career and homemaking, student and teacher, parent and child) that share some common attributes. Other examples of frame games with preloaded content include *Pro's and Con's* and *Confrontation*. *System 1* also comes with preloaded content, but this is more in the way of suggested examples to the teacher-user than complete specifications.
- *Loading by the game leader.* Many frame games depend on the game leader (teacher or trainer) to load the new content before play. *Teams-Games-Tournament*, for example, requires the leader to load specific games. The game leader initiates *Planning Exercise* by selecting an appropriate problem area.
- *Loading by players.* Some frame games are dependent on the players themselves for loading new content. *Making a Change* is this type of frame game in which players cooperatively select an appropriate problem area. An effective variation of the player-load theme involves different players (or teams) working on the content loaded by one another. In later phases of *Making a Change*, for example, each team evaluates and provides feedback on the forms completed by another team. An effective example of players operating on each other's content is *SciFi*. The problem identified by one team receives appropriate solutions from *all* other teams during the play of this game.
- *Combination loads.* It should be obvious that different people may take partial responsibility in loading a frame game. *Press Conference*, for example, requires loading by players to create the initial sets of questions and then loading by the game leader (or outside experts) to provide the "answers." *GAMEgame IV* uses a more comprehensive combination: It comes with suggested opinion cards from the developer, the game leader is encouraged to prepare a set of opinion cards before the game; the first activity of the game requires each player to contribute four additional opinion cards. Priming games (*Policy Negotiations* and *They Shoot Marbles*) are deliberately designed to be reloaded by the players after the initial rounds of playing the game with the developer's content.

Table 2 indicates who does the loading in each of the fourteen selected frame games.

TABLE 2 Comparison of the Loader of Selected Frame Games

Frame Game	Developer Load	Leader Load	Player Load (self)	Player Load (others)
Confrontation	X		X	
Encapsulation	X			
Facts in Five	X	X	X	
GAMEgame IV		X	X	
GAMEgame VI	X	X		X
Making a Change			X	X
Planning Exercise		X		X
Policy Negotiations	X		X	
Press Conference		X	X	X
Pro's and Con's	X			
SciFi				X
System 1	X	X		
Teams-Games-Tournament		X		
They Shoot Marbles	X		X	

Flexibility

"Loadability" refers to the ease with which a frame game may be adapted to handle new content. "Flexibility" refers to the ease with which a frame game may be adapted to suit the physical resources and constraints present in the use-context. The three major elements that contribute to the flexibility of a frame game are briefly discussed below.

• *Number of players.* A highly flexible frame game can be played by any number of players. A low level of flexibility is indicated by a frame game that requires an exact number—no more, no less—to successfully play the game. None of the frame games described here has rigid requirements in terms of numbers of players. Generally speaking, a game that has a smaller minimum number of players as a requirement is more flexible than one that requires a large minimum number of players. This is so because a group can always be split into subunits, each playing the game independently. The fewer the number of players required to form each subunit, the easier it is to include everyone. In this respect, *GAMEgame IV* (which requires a minimum of ten players), *Planning Exercise* (a minimum of sixteen players), and *Press Conference* (a minimum of ten players) are less flexible than *System 1*, *Facts in Five*, and *Confrontation*, all of which can be played by two or three players.

• *Time requirement.* Games with a *brief* minimum time requirement are more flexible than those with longer *minimum* time requirements. You can always replay the former games any number of times to fill up your available space. Thus *System 1* (minimum time requirement of twenty minutes) and *Facts in Five* (minimum time requirement of five minutes) are much more flexible than *Planning Exercise* and *They Shoot Marbles*, which require at least a couple of hours to play. In addition, some frame games (for instance, *GAMEgame IV* and *Confrontation*) have a standard format for playing each round so the number of rounds may be increased or decreased to fit the available time, whereas frame games like *Making a Change* have a nonrepeated progression.

• *Material requirements.* Frame games that require mere paper and pencil for play are much more flexible than those that require elaborate equipment and special game materials. Although most of the frame games reviewed here are extremely flexible in this respect, *They Shoot Marbles* is an exception. It requires an elaborate set of paraphernalia (game surface, marbles, Lego blocks, timers, and so forth) to set up the game. Some of the commercial games (*Encapsulation* and *Facts in Five*) tend to require specialized materials, whereas noncommercial ones are less expensive and require more easily

TABLE 3 Comparison of the Flexibility of Selected Frame Games

Frame Game	Number of Players	Time Requirement	Time Flexibility Rating	Materials
Confrontation	3 or multiples of 3	45 to 90 mins	high	Confrontation cards poker chips
Encapsulation	3 to 12	45 to 90 mins.	medium	"Bias" board, role cards, forms
Facts in Five	2 or more (in teams, if necessary)	5 minutes per round	high	Deck of cards with classes and categories, playcards, master score cards, timer
GAMEgame IV	3 to 30 players in 3 to 6 teams	30 to 60 mins.	high	No special materials
GAMEgame VI	10 to 60	30 to 60 mins	high	Opinion cards (blank and preprinted)
Making a Change	12 or more players in teams of about 5	Two sessions of approximately two hours each, with time for indep. study in between	low	Participant's manual and different forms
Planning Exercise	16-36 players in 3-7 teams	3 to 5 hours	low	No special materials
Policy Negotiations	6 to 30	2 to 4 hours	low	Poker chips, list of issues, and score board
Press Conference	10 to 30	90 mins to 3 hours	low	Index cards of 4 different colors
Pro's and Con's	3 to 15	2 to 3 hours	high	Issue cards, score sheets, flip card rings, observer's form
SciFi	3 to 30 players (individual players up to 7; after that 3 to 6 equal teams)	30 to 90 mins.	high	Envelopes for problems and index cards for solutions
System 1	2 to 9	20 to 40 mins.	high	Information display grids, plastic tiles and adhesive paper for preparing data units, and storage units
Teams-Games-Tournament	12 to 60 divided into teams of four players	Regular class period, once a week for a semester	medium	Materials required for the games used in the tournament
They Shoot Marbles	12 to 50	1 to 3 hours	low	Games surface, marbles, Lego blocks, wooden blocks, cylinder, etc

available materials.

Table 3 compares the flexibility of the fourteen selected games. All the information provided is factual except for the time-flexibility rating. This is an expert judgment on our part which takes into consideration a number of factors including our experiences with the game

Purposes

Frame games may be designed to serve a variety of purposes. One primary purpose of the games reviewed is to provide instruction. Within this broad goal, the game may help the players achieve different types of specific objectives. Other frame games may have a noninstructional intent: They are designed to provide an efficient organization for group activities. Brief descriptions and illustrations of the different purposes of frame games are provided below.

Instructional Purposes

• *Awareness objectives.* Some frame games produce results in the borderline area between the cognitive and affective domains where players are sensitized to the presence of various factors. In *GAMEgame IV,* for example, players become aware of the wide range of opinions toward the use of simulations and games, including those they had never imagined possible. *Confrontation* and *Encapsulation* are examples of frame games in which the players acquire insights into influences that govern their behaviors.

• *Lower-level cognitive objectives.* Some frame games help players learn basic facts and figures. *System 1* is a game that can sugarcoat a dull didactic drill. Even though *Facts in Five* and *Teams-Games-Tournament* could be used for other instructional purposes, they are examples of frame games that are suited for this kind of lower-level learning.

• *Higher-level cognitive objectives.* Frame games may also help players synthesize and apply various skills and concepts for solving problems. *Press Conference,* for instance, requires players to gather, structure, and effectively summarize information. *Facts in Five* and *System 1* are also examples of games that may be used to help players acquire such higher-level cognitive skills.

Noninstructional Purposes

• *Planning.* An obvious example of a frame game that structures the planning activities of a group is Paul Twelker's *Planning Exercise.* This frame game enables a team to identify a problem, create alternative solutions, and evaluate their relative merits. Twelker's other game, *Making a Change,* is also an example of a frame game designed for planning purposes.

• *Group decision making.* Planning is just one example of a wide range of group decision making activities that may be rendered more systematic through the use of a frame game. *Policy Negotiations* is an example of a frame game that organizes the decision-making process so that various players have a say on what decisions are made and how they are made Goodman's other game, *They Shoot Marbles, Don't They?* structures the way in which a group of players makes decisions to govern the group's activities.

• *Evaluation.* Some frame games are used for enabling a group to jointly evaluate an idea or object. In *GAMEgame VI,* the group is required to brainstorm a list of ideas and then to arrange them in a collaborative effort in order of priority. *SciFi* requires different players to come up with alternative solutions to different problems and lets the players themselves decide on the relative efficiency of each solution

Table 4 indicates the purposes of the fourteen selected frame games Whereas it is true that any given frame game may be used to serve any purpose in the hands of a skilled game leader, we have indicated only the primary purposes of each frame game.

Levels of Simulation

Just like any other instructional game, a frame game may or may not be a simulation of some aspects of reality. The following is a brief discussion of different levels of simulation among the selected frame games.

• *Nonsimulation frame games.* These frame games make no attempt to re-create reality. They are usually games with a cognitive instructional intent at the lower levels. Often they help the players master facts and figures and arrange them in various categories. *Facts in Five* and *System 1* are examples of this type of nonsimulation frame game.

TABLE 4 Comparison of the Purposes of Selected Frame Games

	Instructional Purposes			Noninstructional Purposes		
	Awareness	Lower Cognitive	Higher Cognitive	Planning	Decision Making	Evaluation
Confrontation	X					
Encapsulation	X				X	
Facts in Five		X	X			
GAMEgame IV					X	X
GAMEgame VI	X				X	
Making a Change				X	X	X
Planning Exercise				X	X	X
Policy Negotiations	X				X	
Press Conference	X	X	X			
Pro's and Con's	X				X	
SciFi					X	X
System 1		X	X			
Teams-Games-Tournament		X	X			
They Shoot Marbles	X				X	

• *Pseudo-simulation frame games.* Very often a frame game of the nonsimulation variety is clothed in a simulation that has no relevance to the instructional intent. *Press Conference,* for example, has some elements that represent what happens during an actual press conference. However, this representation has nothing at all to do with the instructional intent of the game, which is to communicate various facts related to a subject area.

• *Simulation frame games. Confrontation* is an example of a simulation frame game in which critical elements of a confrontation situation are depicted in a game format to help players achieve insights and skills related to the interpersonal dynamics of such a situation. *Policy Negotiations* is another simulation frame game in which various critical elements of the way a group makes a decision are realistically portrayed in a compressed-time model. *They Shoot Marbles* is another simulation game related to the process by which people relate to each other in a society. In comparison with the other simulation frame games, *Marbles* is a highly abstract simulation.

• *Operational frame games.* Most of the frame games used for noninstructional purposes are procedures for problem solving in groups. *Planning Exercise,* for example, is not meant to *simulate* how groups solve problems in real life. It is to be used for actual problem solving *SciFi* is another example of a frame game that may be used for putting a systematic procedure for group interaction into operation.

Table 5 compares the levels of simulation of the selected frame games.

Complexity of Rules

The number and complexity of rules vary considerably from one frame game to another. Frames such as those contained in *Facts in Five* and *SciFi* have fairly simple rules that can be explained in a matter of minutes. On the other hand, frames like those in *They Shoot Marbles* and *Making a Change* have sets of complex interrelated rules. Even with elaborate explanations, the players may have to get into the game with a only a partial understanding of the rules and then wait to obtain "on-the-game" clarification.

Table 6 compares the number and complexity of rules for the selected frame games. Incidentally, there is no value judgment implied in a frame game's having complex rules. It is our belief that all the selected frame games have the optimum complexity of rules and that, given adequate preparation and appropriate setting, all the selected games work well.

TABLE 6 Comparison of the Complexity of Rules of the Selected Frame Games

Frame Game	Simple	Medium	Complex
Confrontation		X	
Encapsulation		X	
Facts in Five	X		
GAMEgame IV		X	
GAMEgame VI		X	
Making a Change			X
Planning Exercise			X
Policy Negotiations			X
Press Conference		X	
Pro's and Con's	X		
SciFi	X		
System 1		X	
Teams-Games-Tournament	X	X	X
They Shoot Marbles			X

Scoring

One type of rules related to frame games deals with the scoring system and the determination of winners and losers. There are two specific aspects of scoring systems which vary among the selected frame games, and these are briefly described below.

• *Number of criteria for winning.* A frame game may emphasize just one criterion for winning or it may focus on more than one. *SciFi* and *Facts in Five* have single win criteria. In the former, the player or team that writes the most top-ranked solutions is the winner. In the latter, the player or team that has the most cells correctly filled is the winner. *Confrontation* and *GAMEgame IV* use multiple criteria. In the former, scores are compared to decide who has accumulated the most poker chips, which group has made more compromises, and which group has solved its problems most effi-

TABLE 5 Comparison of Levels of Simulation of Selected Frame Games

Frame Game	Nonsimulation	Pseudo-simulation	Simulation	Operational Game
Confrontation			X	
Encapsulation			X	
Facts in Five	X			
GAMEgame IV				X
GAMEgame VI	X			
Making a Change				X
Planning Exercise				X
Policy Negotiations			X	
Press Conference		X		
Pro's and Con's			X	
SciFi				X
System 1	X			
Teams-Games-Tournament	X	X		
They Shoot Marbles			X	

ciently. In the latter, teams may win either for being able to psych out the other teams' selections or for including most of the top items in their original list.

• *Zero-sum and non-zero-sum frame games* In games like *GAMEgame IV* and *SciFi,* there is a single winner (for each category, if there is more than one). In games like *Press Conference* and *Confrontation,* it is possible for more than one person to win in each category. The former type, in which it is not possible for more than one person (or team) to win, is called a zero-sum game (in a simplified sense). The other type, which potentially permits everyone to win, is called a non-zero-sum game.

Table 7 compares the scoring systems of the fourteen selected frame games. As you may notice, some frame games (for instance, *Encapsulation* and *They Shoot Marbles*) de-emphasize the scoring system completely

Advantages and Limitations of Frame Games

We do not claim that the fourteen games we reviewed represent the best that is currently available in the area of frame games. It is our opinion, however, that these fourteen are excellent examples of the versatility and diversity of frame games.

The advantages and limitations of instructional games have been listed and discussed so frequently that it would be superfluous to repeat them here. However, we would like to briefly point out some unique advantages and disadvantages of *frame* games.

On the positive side, frame games help the user in these ways.

• Designing a game from scratch is a time-consuming and unpredictable task. However, with the frame game approach, a teacher or trainer can "design" a game in a fraction of the time and with guaranteed results (because of the testing and revisions the original frame has undergone).

• Very often the teacher or trainer does not find a game that precisely meets the local needs and objectives. With the frame game approach, the game can be custom tailored to incorporate the exact contents desired.

• For the learner, frame games frequently provide an opportunity to participate in loading new content. Players probably learn more from such participation in the creation of the game than in actual play

• Once the rules of a frame game have been mastered, it is easier to learn how to play the new loads. Thus the learner spends less time mastering the mechanics of a game and more time exploring the content when different versions of the same frame game are played.

Frame games are efficient and powerful tools, and therein lies the major danger in their use. The simplicity of frame games brings into action Kaplan's Law of Hammerability ("Give a kid a hammer and he will find hundreds of things that need hammering"). In earlier workshops we used to extol the virtues of the children's game Slapjack We lived to regret our contagious enthusiasm when we received hundreds of loads on the frame for the next three years. Teachers and trainers were using the game to teach shape discrimination in kindergarten and sonar-blip discrimination for the crew of a nuclear submarine, bovine-respiratory-ailment discrimination for veterinary doctors, and discrimination of different styles of acting for theater majors. There is nothing more damaging to an innovation than looking for suitable problems to apply it to, and nothing more disillusioning than the rigid appreciation of a flexible tool. We hope that in this essay we were able to convince you of the merits of frame games in general and a few specific ones in particular without creating an obsessive need to use them.

Sources

Confrontation
Harold D. Stolovitch
1979

TABLE 7 Comparison of the Scoring Systems of Selected Frame Games

	Win Criteria		Type of Game		
Frame Game	Single	Multiple	Zero-sum	Non-zero-sum	Scoring De-emphasized
Confrontation	X		X	X	
Encapsulation					X
Facts In Five	X		X		
GAMEgame IV		X	X		
GAMEgame VI		X	X		
Making a Change					X
Planning Exercise					X
Policy Negotiations		X	X		
Press Conference		X		X	
Pro's and Con's					X
SciFi	X		X		
System 1	X		X		
Teams-Games-Tournament	X		X		
They Shoot Marbles					X

Instructional Alternatives
4423 East Trailridge Road
Bloomington, IN 47401
$2.00

Encapsulation
1972

Creative Learning Systems, Inc.
936 C Street
San Diego, CA 92101
master set $35.00

Facts in Five
R. A. Onanian
1966

Avalon Hill
4517 Harford Road
Baltimore, MD 21214
$12.00

GAMEgames IV and VI
Sivasailam Thiagarajan
1976, 1978

Instructional Alternatives
4423 East Trailridge Road
Bloomington, IN 47401
each $2.00

Making a Change
Paul A. Twelker and
Kent T. Layden
1974

Simulation Systems
Box 46
Black Butte Ranch, OR 97759
$4.00

Planning Exercise
Paul A. Twelker
1971

Simulation Systems
Box 46
Black Butte Ranch, OR 97759
$3.00

Policy Negotiations
Frederick L. Goodman
1974

Institute of Higher Education Research
and Services
Box 6293
University, AL 35486

Pro's and Con's
1976

Creative Learning Systems, Inc.
936 C Street
San Diego, CA 92101
$19.95

SciFi
Diane Dormant
1976

Instructional Alternatives
75¢

System 1
Instructional Simulations, Inc.
1969

Griggs Educational Service
1731 Barcelona Street
Livermore, CA 94550

Teams-Games-Tournament
David L. DeVries and
Keith J. Edwards
1973

Center for Social Organization of Schools
The Johns Hopkins University
3505 N. Charles Street
Baltimore, MD 21218
$3.00

They Shoot Marbles, Don't They?
Frederick L. Goodman
1973

Institute of Higher Education Research
and Services
Box 6293
University, AL 35486

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