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ABSTRACT

The document provides an annotated list of 130 games and simulations for elementary and secondary economics courses, outlines procedures for using games, and reviews research studies on social science games and simulations. It is presented in five chapters. Chapter I lists selection criteria: the simulation/game must use the role playing features of simulation and the competitive nature of games; the exercise has to involve the use of economic behavior, goals, and/or concepts; it must be applicable to many classroom situations; and all exercises must be commercially and/or publicly available. Chapter II discusses constructing, selecting, and using games in the classroom and provides a bibliography on the subject. Chapter III summarizes findings in current research on instructional games in economics and the social sciences. Chapter IV contains the annotated list of currently available simulations and games. Each entry provides title and source, subject matter, grade level, approximate playing time, cost, number of participants needed, and a description of procedures and objectives. Chapter V lists other appropriate games and simulations, bibliographies, and journals. Addresses of publishers and distributors are included. (KC)

A Guide to GAMES AND SIMULATIONS FOR Teaching Economics

Third Edition

Cathy R. Wilson
Mark C. Schug

Foreword by
William E. Becker Jr.

1979
Joint Council on Economic Education

JCEE Checklist No. 283

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Foreword

This publication reflects the continuing effort of the Joint Council and the University of Minnesota Center for Economic Education to keep economic educators abreast of the latest noncomputer games and simulations for teaching economics to elementary and secondary school students.

Since simulations and games have been widely accepted and used by many educators, this edition places less emphasis on the "how to do it" aspects of classroom games than did previous editions. Also, the section dealing with research on games and simulations has been condensed. It now essentially consists of an annotated bibliography of recently published studies of games and simulations. However, those doing research in this field should note that an extensive annotated bibliography of relevant *unpublished* research studies is available from the University of Minnesota Center for Economic Education. The heart of this monograph is an annotated list of games and simulations in economics, and the monograph closes with listings of other relevant bibliographies, current journals, and newsletters as well as the current addresses of publishers whose games and simulations are included in the annotated list. Educators seeking new and useful simulation materials with which to teach basic economic concepts should find this monograph a valuable tool.

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Acknowledgments

The present monograph represents the third edition of the Joint Council on Economic Education's compilation on games and simulations for teaching economics. The first edition, written by Darrell Lewis and Donald Wentworth, was published in 1971. It reported on some ninety games and simulations available at that time. The second edition, published in 1974, added William Becker and Robert Reinke as authors. It included information on 80 new games among the 130 annotated. Several new sections on game construction, selection, use, and evaluation were added.

This latest version constitutes a transition in authorship and a continued refinement of content. Cathy Wilson and Mark Schug have streamlined and updated the contents to further assist elementary and secondary teachers in the construction, selection, evaluation, and use of non-computer-based games and simulations in classrooms. Once again, some 130 games and simulations have been annotated.

The continuous updating of information on games and simulations is made possible by the existence of our national depository for games and simulations at the University of Minnesota's Center for Economic Education. This center, established in 1961 as an affiliate of the Joint Council, has specialized in collecting, reviewing, and evaluating games and simulations since 1969. Teachers, librarians, and publishers are invited to send their suggestions for additions and comments to the University of Minnesota Specialized Center for Games and Simulations in Economics (see page 3 for the address).

We are indebted to all the educators, economists, and community leaders who assist the University of Minnesota Center in carrying out that task. We thank the many teachers, writers, and researchers currently constructing, testing, and evaluating the numerous games and simulations available. We are especially grateful to Cathy Wilson and Mark Schug for locating material and organizing it for the purposes of this monograph.

S. Stowell Symmes
Director of School Services
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Introduction

Classroom use of educational games and simulations is no longer in its infancy. It has been nearly a decade since the first edition of this bibliography was published. In education, yesterday's innovations often lose popularity as fast as yesterday's baseball hero. However, this has not been true of games and simulations. Following their introduction to precollege classrooms in the middle sixties, discussion of their educational worth increased steadily. During the middle and late seventies interest in the use of games and simulations consolidated. Many teachers now use them, and new games are constantly being developed.

Because of the continuing popularity of games and simulations, the Joint Council on Economic Education, recognizing its responsibility to provide educators with up-to-date information on all facets of economic education, has decided to issue a third edition of its bibliography on the subject.

In September 1970, the Joint Council designated the Center for Economic Education at the University of Minnesota as the national depository for games and simulations in economic education. In the years since, the Center has been purchasing and reviewing simulations and games relating to economics.

Criteria for Inclusion

The simulations and games found in this publication were included (or excluded) according to the following criteria.

1. The simulation or game had to meet a working definition established by the Center for the terms "educational simulation," "game," and/or "simulation-game." Literature in the field abounds with controversy over what is meant by these words. The developers of this project found the following definitions of value:

> A learning *game* is a model of student interaction which usually involves a "winner," and the winner is a person who has learned enough content to win the game. The game essentially provides a competitive setting for the learning of subject matter.
>
> *Simulations* are attempts to model a portion of reality in an

artificial or simulated situation by reproducing the social, economic, or political processes of particular systems of social interaction. Students assume roles in the system and try to understand how the system operates by participating in it as members not as observers.

A *simulation-game* is a combination of these models that tries to use the role-playing features of simulations for learning how a system operates and the competitive nature of games to enhance student motivation. Most exercises available and mentioned in this publication have both of these characteristics.

2. The exercise had to involve the use of economic behavior, goals, and/or concepts. This gave our project a very broad range: some of the games and simulations are restricted entirely to simulating economic behavior; others deal with problems or concepts in ecology, urban planning, and history. No matter how diverse the range of subjects covered, the games and simulations selected involve, at a minimum, decisions about allocations and actions in response to scarcities of supply. This criterion allowed our project sufficient breadth of purpose to serve a variety of teaching needs as well as sufficient narrowness of purpose to give the publication a central focus.

3. The game or simulation had to be applicable to many educational situations. Although this volume includes exercises primarily for the elementary and secondary levels, some can be used in colleges as well. Business management games and advanced undergraduate or graduate level simulations were excluded.

4. All the exercises included had to be commercially and/or publicly available. This was the most stringent test. In most other bibliographies and publications dealing with games and simulations, many of the exercises are, unfortunately, not publicly available. In many instances, the exercises do not ever become available; therefore readers begin to doubt the credibility and usefulness of reference documents.

Undoubtedly, this project has ended with some errors of omission. Much excellent work is done by individuals and schools that never receives publicity and that is never exposed to the outside world. Moreover much is written and published but never widely distributed.

How to Use This Publication

Following the present introduction, Chapter 2 deals with constructing, selecting, and using games in the classroom. After a brief statement on how to make the most effective use of games and simulations, there is a bibliography that tells readers where more detailed descriptions may be found.

Chapter 3 provides a summary of findings and annotations in current

research on instructional games and simulations in economics and the related social sciences. This section can be useful to any educator, but should be of greatest interest to anyone wishing to conduct research.

Chapter 4 contains an annotated list of all currently available simulations and games for the teaching of economics and related topics that fit the "Criteria for Inclusion." This is the heart of the present publication. Each annotation gives the title of the simulation/game and its source, subject matter, grade level(s), approximate playing time, cost, number of participants needed, as well as a description of its procedures and objectives.

Chapter 5 lists other published games and simulations, bibliographies, and journals that address themselves to questions about games and simulations. It also gives the names and addresses of publishers and/or distributors of the educational games and simulations mentioned.

We hope that this publication answers a real need in the field of economic education. We recognize that the use and availability of games and simulations in economic education will continue to change. Consequently, we intend that this publication, particularly the bibliography, be revised every two or three years to reflect these changes. We also hope that readers will provide us with the names and producers of additional simulations and games as they learn of their existence. Please send the relevant information to

Specialized Center for Games and Simulations in Economics
University of Minnesota
1169 Business Administration Building
271 Nineteenth Avenue South
Minneapolis, MN 55455

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Choosing and Using Games and Simulations for Teaching Economics

Simulations and games may be new to some teachers. Many may not know how or when to use them, what can be gained from their use, or how to expect a class of students to react when participating in such an activity. While the Center for Economic Education at the University of Minnesota was engaged in this project, a number of helpful guidelines or insights about these matters began to stand out.

First of all, what is educational simulation-gaming and what can it accomplish? Paul Twelker has made the following statement about the potential of simulation in learning: "Simulation is a means for letting learners experience things that otherwise might remain beyond their imagination, a means to practice skills safely and without embarrassment. . . ."

In order to gain maximum benefit from the use of simulation-games in the classroom, teachers must realize that games and simulations require as much or more teacher preparation time as do most other classroom techniques. They also require a change in the teacher's classroom role, careful organization, and clear instructional objectives. Games and simulations are not helpful in isolation; they must be used in conjunction with other activities in a carefully planned curriculum unit in order to be most effective.

The procedures for using simulations and games can be grouped into four steps: (1) teacher preparation, (2) student orientation, (3) playing the exercise, and (4) review session.

Teacher Preparation

Teacher preparation is probably the most important element that determines the success of a game or simulation. The teacher must have enough understanding of the activity's objectives, its procedures, its pressures and problems, and the frustrations encountered in the experience in order to operate effectively as umpire, coach, provoker,

sympathizer, leader, and final authority. The teacher must switch roles with flexibility and insight in order to keep the exercise going. A teacher must be well prepared to fill all those roles, which often require not involving oneself in the actual play.

The activity selected should be congruent with the objectives of the curriculum unit being taught. These objectives should be explicit, well thought out, and closely articulated with the materials, media, and method under consideration. Remember that games and simulations represent tools of instruction; by themselves they are no better or worse than any other such tool. They should be used only when the teacher has determined that the game or simulation represents the most desirable means to the instructional end.

After making a decision to employ a game or simulation, the teacher should first play it with a practice group. Such a group may consist of friends, fellow teachers, or even one's family. The characteristics of the practice group are not very important; the "dry run" experience is crucial. It can expose the teacher to some of the confusion and difficulties inherent in doing such activities. If it is impossible to have a dry run, then one ought to try "walking through" the activity in his or her imagination. In doing so; the teacher should: carefully read the teacher and participant manuals; try to imagine what confusions may arise among the students; be ready to deal with the possible confusions. Problems always arise, especially in the initial rounds of play, but with adequate planning they are rarely insurmountable.

Student Orientation

The students should be familiarized with the demands that will be placed upon them when they participate in the exercise. After the teacher has given them a general introduction, they should read the participant manuals. If students are unfamiliar with role-playing activities, time should be devoted to explanation and practice. If they seem confused about the complexities involved, give them reassurance, but do not spend much time trying to make all the directions and circumstances crystal clear. That generally only creates more confusion. The best way to understand a game or simulation is to play it and work out the problems as they arise. After the first round or two the participants should grasp the idea of the play without difficulty.

Playing the Game

The teacher should circulate among the students throughout the activity—observing, listening to negotiations, offering suggestions when appropriate, and providing encouragement. The teacher must also keep track of time. The organization of time, the movement from round to round, and insistence on behavior consistent with the rules of the game are very important in most simulation-games. Strict attention

should be given to these procedural details. Some students may consider games as synonymous with "having fun," and the teacher must be prepared to link the fun with the education.

What should the teacher do if he or she overhears an inaccurate judgment or observes a participant responding in a way which will probably prevent the student from reaching the goal of the exercise? Generally, a teacher should refrain from interfering. It is an inherent quality of most games and simulations that poor judgments are likely to result in poor performance. Generally, players should learn by themselves or in their relations with other players that there are more appropriate strategies than those they are pursuing. If incorrect judgments are not pointed out during play, there should always be an opportunity to discuss those judgments and behaviors in the review session that follows. The reason a teacher should not respond to all errors noticed is precisely to allow the players to get some of the factual information confused. If the primary objective of the teacher is to present only accurate, factual information, then there is little reason to use simulations and games.

It is important to remember that using simulations and games in the classroom will invariably raise noise and activity levels. These exercises require student interaction. Teachers will have to decide what noise levels are appropriate (students still have to be able to hear other players), but they should not expect participants to play in passive or whispering tones. If that does happen it probably indicates that the activity is unsuccessful as a learning experience.

It is wise for both students and teachers to remember that the poet Coleridge requested his readers to make a "willing suspension of disbelief" while reading his poems. This is quite appropriate advice for participants in simulations and games as well. All such activities are necessarily distortions of reality—usually because of oversimplification. As with all models, it is impossible to simulate fully and accurately an entire economy, system, or problem, for many of the complexities and variables are simplified or even eliminated. As one participates in many such activities it becomes easy to see their limitations and distortions. A cynical approach can easily be used to rationalize not taking the activity seriously or questioning its usefulness. One must "suspend disbelief" and accept the activity on its own terms and objectives while participating in it. It is later, in the review session, that the game or simulation can be criticized in terms of its internal consistency, its interest to participants, its ability to meet its objectives, and the extent to which it distorts reality.

Review Session

Review sessions are crucial to the use of any game or simulation. That is the time for participants to reflect upon and to draw conclusions from

their experiences. Questions of the following nature are generally appropriate:

- What strategies did you use?
- Which strategies were most successful in accomplishing your goal?
- Why were some strategies successful while others were less successful?
- What conclusions (or inferences) can you make concerning the operation of this system in real life?
- Do you think this activity was realistic? What other experiences have you had or observed that would verify your opinion?
- How would you change this activity to make it more realistic?

After students have played and discussed an exercise, especially if they enjoyed the experience, they may want to develop their own simulation or game. This is often a very rewarding, although potentially frustrating, experience for them. Activity of this type usually requires students to use content material and modes of thinking consistent with all categories of Bloom's taxonomy of educational objectives. Just as teachers often claim that they have never learned anything as well as they did when they had to teach the material, designers of games—even amateurs at it—typically feel that developing such activities is a valuable learning experience. This may be one reason why many of the learning objectives claimed by many simulation-game designers have never been verified by research. What the developers claim can be learned from playing the exercise may, in reality, be learned only from the process of designing the exercise.

If in reading this chapter some readers begin to develop the nagging suspicion that this discussion is not a ringing endorsement of educational games and simulations as the only answer to all teaching problems, their critical reading antennae are working well. To repeat our previous advice: although the games and simulations in this publication are an extremely useful and interesting part of the teaching-learning experience, they are only effective as part of a total plan and with other support, i.e., other materials, other activities, other media, and a well-prepared teacher.

ANNOTATED REFERENCES

Choosing Games and Simulations

Abt, Clark C., *Serious Games: The Art and Science of Games That Simulate Life*. New York: Viking Press, 1970.

This book is written for the lay public in an effort to explain the uses of educational games and simulations. It concentrates almost exclusively on the work done by the Abt organization. The book

contains a series of anecdotes and suggestions but has no bibliography or references.

Abt, Clark C., "Why Educational Games Win Converts," *Nation's Schools*, 80 (October 1967), 92-93 and 118.

This article suggests that educational games and simulations may offer achievement and motivation gains at costs less than those of alternative instructional methods. Techniques are defined, examples are given, and hypotheses are made suggesting why simulation games improve teaching efficiency.

Adams, Dennis M., *Simulation Games: An Approach to Learning*. Worthington, Ohio: Charles A. Jones Publishing Company, 1973.

The book is a concise and practical guide to the understanding, design, construction, and use of simulations, games, and related experiences for learning.

Atkinson, Francis D., "Designing Simulations Gaming Activities: A Systems Approach," *Educational Technology*, 18 (February 1977), 38-43.

The article presents a two-stage model for designing a simulation game. The first stage, consisting of five steps, clarifies objectives and determines whether a simulation approach should be used. The second stage (steps 6-17) outlines the development process for a simulation game.

Baldwin, John D., "Influences Detrimental to Simulation Gaming," *The American Behavioral Scientist*, 12 (July-August 1969), 14-21.

It is the premise of this article that students learn best from simulations which require them to develop adaptive behavior appropriate to coping with the simulated environment. The author contends that many educational simulations are biased by structural design or administrator effects.

Ball, Howard G., "What's in a Game?" *Elementary School Journal*, 77 (September 1976), 42-49.

The article provides a brief introduction to gaming and simulation. The introduction is followed by an assessment inventory. The inventory is divided into nine basic categories and each category contains a list of statements used to assess the instructional effectiveness of games.

Bjur, Wes, "So You Want to Try a Simulation Game? Here are 'Getting Underway' Suggestions," *Simulation/Gaming*, 4 (March/April 1977), 4-6.

This article focuses on practical suggestions for the game director

in each of several stages: Preparation, The Face-Off, During Play, Debriefing, and Follow-up.

Boocock, Sarane S., "Changing the Structure of Secondary Education with Simulated Environments," *Educational Technology*, 7 (February 1968), 3–6.

This article describes three structural defects in secondary education that tend to discourage learning and discusses how simulation games can directly attack these structural problems in the secondary classroom.

Boocock, Sarane S. and E. O. Schild, eds., *Simulation Games in Learning*. Beverly Hills, Calif.: Sage Publications, 1968.

In this book the authors provide a "progress report on recent thinking and findings" in the area of simulation games used as teaching devices. They collected a series of papers and research projects that represented the state of the art at the time of publication. An extensive bibliography is also provided.

Carlson, Elliot, *Learning Through Games*. Washington, D.C.: Public Affairs Press, 1969.

This book explains how strategy games are being used by schools, business firms, labor unions, and others to achieve a wide range of objectives. It provides information about the use of games as learning devices at the elementary, secondary, and college levels. Emphasis is placed on how games permit both academically talented and slow learners to discover for themselves principles that govern social, political, and economic situations.

Cassel, Russell N., "Instructional Gaming and Simulation," *Contemporary Education*, 45 (Winter 1974), 100–105.

The article provides a brief historical perspective on simulation gaming and outlines twelve basic principles. It also contains several applications of gaming for school use.

Coleman, James S., "Academic Games and Learning," *NAASP Bulletin*, 52 (February 1968), 62–72.

This paper describes the unique attributes and objectives of academic simulations. Specific attention is given to structure and goal formulations. A similar article describing the use of simulation games developed at Johns Hopkins University can also be found in "Learning Through Games," *NEA Journal*, 56 (January 1967), 69–70.

Columbia Broadcasting System Films, *Games Futurists Play*. New York: McGraw-Hill Book Co., Inc., 1968.

This 26-minute color film introduces viewers to the methods of

role-playing while trying to solve future social problems. Viewers observe two simulated situations.

Duke, Richard D., *Gaming: The Future's Language*. New York: Sage Publications, 1974.

The central thesis of this book is that gaming is a new form of communication emerging suddenly and with great impact. Section II explores gaming as a communication form, and Section III examines the design and use of games.

Easterly, Jean L., "Model Building for Simulation Games," *Educational Technology*, 19 (January 1978), 55–57.

The article is a brief summary of the game design process which uses the game Decisions as an example. The emphasis is on the importance of developing a valid model of a real-world situation and then translating that model into an effective simulation game.

Ellman, Neil, "Before the Simulation Fails: Avoiding Potential Pitfalls," *The Social Studies*, 68 (November/December 1977), 251–253.

The article gives ten suggestions for trouble-shooting a simulation. Emphasis is placed on teacher planning as the most effective way to avoid failure.

Frick, Kathleen B., "Information Sources on Instructional Simulation/Games from A to Z," *Improving Human Performance Quarterly*, 4 (Spring 1975), 175–180.

This article is a brief bibliography of sources on instructional simulations and games. The sources have been screened with the idea that each should be readily usable by the majority of readers.

Frith, Greg, "Choosing Games: Not an Easy Task, but These Fifteen Principles will Help," *Simulation/Gaming*, 3 (November/December 1976), 10.

The article's stated purpose is "to better inform the prospective consumer as he or she attempts to select an appropriate game." Fifteen criteria for game selection are listed.

Gillespie, Judith A., "Analyzing and Evaluating Classroom Games," *Social Education*, 36 (January 1972), 33–42.

This article provides guidelines for teachers in deciding what games should be used to teach students. The criteria or guidelines identify the games' problem, choices, moves, rules, organization, and conclusions as crucial variables that can be analyzed and evaluated by the teacher in making his or her judgment. The article explains the analysis in depth and uses specific examples of how this analysis is applied to the evaluation of a game concerning voting behavior.

Glenn, Allen D., "Simulations in the Instructional Sequence," *Social Studies*, 68 (January/February 1977), 23–26.

The article proposes several ways in which a teacher might use a simulation in a social studies unit. The purpose of the strategies is to permit the teacher to think critically about how and when a simulation may be used efficiently.

Goodman, Fred, "Mini-System Exercise Is Dropped into the Public Domain by Goodman," *Simulation/Gaming*, 5 (January/February 1978), 17–20.

This article describes a simple simulation game that is designed to illustrate some of the features of a system that works a bit like the world works. It demonstrates such complexities as the confusing relations among parts, the difficulties of distribution, the negative aspects of what appear to be positive actions, and the difficulty of setting goals.

Gordon, Alice Kaplan, *Games for Growth: Educational Games in the Classroom*. Palo Alto, Calif.: Science Research Associates, 1970.

This book examines the origins of games and their current uses. It contains specific descriptions of some available games and suggestions on how to use them in the field and includes a bibliography of available games for use in secondary and elementary classes.

Greenblat, Cathy S., and Richard D. Duke, *Gaming and Simulation: Rationale, Design and Applications*. New York: John Wiley and Sons, 1975.

This book attempts to integrate theoretical aspects and pragmatic interpretations of simulations and games. It includes over thirty articles by pioneers of simulation and gaming. There are four major divisions of the book. Part one is an overview of the nature and rationale of simulations and games. Part two deals with game construction and design. Part three explores the uses of simulation and games for education and training. Part four examines new areas of application. A bibliography, guidelines for recording game information, and a framework for evaluation are also included.

Gunn, Angus, "Educational Simulations," in *Focus on Geography: Key Concepts and Teaching Strategies*, edited by Phillip Bacon. Washington, D.C.: National Council for the Social Studies, 1970.

This chapter describes simulations available for use in teaching high school geography, reviews research on the effectiveness of educational simulations, and summarizes the advantages and disadvantages of using them as teaching techniques.

Horn, Robert E., *The Guide to Simulations/Games for Education and Training*, 3rd ed. Cranford, N.J.: Didactic Systems, Inc., 1977.

This guide contains descriptions of over seven hundred simulations and games for all fields and levels of education and training. A discussion of its preparation and rationale is given in "What Is It You Want to Know," *Media and Methods*, 7 (October 1970), 42–44.

Inbar, Michael, and Clarice S. Stoll, "Games and Learning," *Interchange*, 1 (1970), 53–61.

The authors present a selected review of research pertaining to the effects of natural and educational games on the participants. They point out the paucity of empirical findings in comparison with the quantity and scope of theoretical advances and suggest lines of research that seem potentially fruitful.

Inbar, Michael, and Clarice S. Stoll, eds., *Simulation and Gaming in Social Sciences*. New York: The Free Press, 1972.

This book primarily deals with simulations and game design. It generally describes the anatomy of simulation gaming from its origin to the present. The design and construction phase is well described through case studies of the actual construction process by well-known simulation developers. Additional design theory complements the case study discussions and facilitates personal game creation.

Maclean, Rupert, "Simulation and Games, with Particular Reference to the Teaching of Economics," *Programmed Learning and Educational Technology*, 13 (July 1976), 12–17.

The article's aim is to indicate some of the most fruitful areas in economics where simulation can be usefully adapted and to specify the types of materials available in this area for use within the classroom.

McFarland, George, "Stretching, Bending, Breaking Rules: How to Deal with Cheating in Games," *Simulation/Gaming*, 3 (November/December 1976), 19–20.

The article gives guidelines for dealing with cheating in games. It gives alternative strategies and conditions under which the strategies should be employed.

Moskovis, L. Michael, "Simulation Revisited," *The Balance Sheet*, 52 (November 1970), 104–106.

This article discusses how the use of behavioral objectives and simulation might improve instruction in business education courses.

Persons, Edgar, "It's an Old Game in Vocational Agriculture," *American Vocational Journal*, 45 (September 1970), 34–36.

This article describes some of the simulations currently in use in the field of vocational agriculture.

Pinge, I., "Simulated Games and Learning in Economics," *Narration*, 13 (March 1974), 6–11.

The article gives a brief rationale for the use of simulated games in economics instruction and then four games which may be used: The Stock-Exchange Game, *ECONOMIC SYSTEM*, The Market Game, and Economax.

Raser, John R., *Simulation and Society*. Boston: Allyn and Bacon, 1969.

This book discusses the entire field of simulation. It deals with theoretical underpinnings, philosophical and methodological considerations, research in the field, historical background of the subject, and the various uses of simulation.

Rogers, Virginia M., and Marcella L. Kysilka, "Simulation Games: What and Why?" *Instructor*, 79 (March 1970), 94–95.

This article gives a description of the alternative uses of simulation games in the elementary classroom.

Shirts, R. Garry, "Simulation Games: An Analysis of the Last Decade," *Programmed Learning and Educational Technology*, 13 (July 1976), 37–41. This may also be found in *Simulation/Gaming*, 3 (September/October 1976), 5–9.

This article attempts to identify trends, problems, and potential for simulation games. It examines the research, theoretical criticisms, practical problems, marketing, and the future of simulation gaming.

Shirts, R. Garry, "Simulations, Games, and Related Activities for Elementary Classrooms," *Social Education*, 35 (March 1971), 300–304.

In this article the author describes four elementary games (Queen Anne, the NASA Game, Explorers, and the Community Land Use Game) and makes several suggestions on how elementary teachers and students could construct their own simulations.

Social Studies Curriculum Center, Carnegie-Mellon University, *The Market Game—Use of a Simulation Game*. New York: Holt, Rinehart & Winston, Inc., 1968.

This 30-minute black-and-white film demonstrates the inquiry method of teaching social studies through the use of a simulation game from the Holt Social Studies Curriculum, edited by Edwin Fenton.

Stadsklev, Ron, *Handbook of Simulation Gaming in Social Education (Part One: Textbook)*. Birmingham: Institute of Higher Education Research and Services, University of Alabama, 1974.

This is Part One of a two-part book. (Part Two is a directory of games and publishers). The handbook is intended as a textbook. It consists of a collection of readings by experts in the field who address the questions, What?, Why?, How? in relation to simulation gaminr.

Stadsklev, Ron, *Handbook of Simulation Gaming in Social Education (Part Two: Directory)*. Birmingham: Institute of Higher Education Research and Services, University of Alabama, 1975.

Part Two of the directory is intended to answer the question "where?" It lists over 250 pages of games appropriate for use in the social studies. Each listing includes source, grade, time, participants, cost, and a brief description. In addition there is a cross-reference matrix which allows the user to indentify games by subject area, grade level, and cost. The directory also lists gaming centers, research, and bibliographies.

Stopp, Peter, "Understanding and Evaluating the Use of Simulations and Games in Schools," *Programmed Learning and Educational Technology*, 13 (July 1976), 29–36.

The article takes the point of view that it is valuable to identify what teachers are doing in the classroom. The author attempts to identify and analyze the factors educators should consider in evaluating simulations.

Sullivan, James J., "The Economics Laboratory at UCSB," *Simulation and Games*, 1 (March 1970), 81–91.

This article is a description of an economics laboratory which makes extensive use of time-sharing computer systems in assisting students better to relate economic theory to actual economic experiences; it allows them to formulate their own economic models and to conduct simulation experiences.

Tansey, P. J., and D. Unwin, *Simulation and Gaming in Education*. New York: Barnes & Noble, 1969.

Various types of games and simulations are described and analyzed in this book, as well as the advantages of simulation and the use of computers to create and control simulation and gaming models.

Thiagarajan, Sivasailam, ed., "Current Trends in Simulation/Gaming," *Viewpoints*, 49 (November 1973), 100–103.

This entire issue of *Viewpoints* is devoted to simulation/gaming in

the social studies. The following articles are included: "Realities of Simulation/Gaming" (v–ix); "Simulation/Gaming as a New Teaching Technology," Henry P. Sims Jr. and Herbert H. Hand (1–8); "Simulation and Roleplaying in the Social Science Classroom," John P. Lovell (9–20); and "Designing Simulation/Games in Social Studies," Judith A. Gillespie (21–28).

Thiagarajan, Sivasailam, *Design, Development and Validation of Instructional Games*. Bloomington: Center for Innovation in Teaching the Handicapped, Indiana University, 1971. (ERIC document ED 111 136, available from Social Science Education Consortium, Inc., Boulder, CO 80302.)

The paper applies the programming process to the production of instructional games. The process consists of seven steps: task analysis and specification of objectives, design of criterion measures, designing the game, editing, developmental testing, validation testing, and developing the instruction manual.

Thiagarajan, Sivasailam, ed., "A Special Issue on Games and Simulations: Part I: Theory, Research, and Design," *Improving Human Performance Quarterly*, 4 (Fall 1975).

The entire issue is devoted to simulation gaming. The article by Cathy S. Greenblat, "The Design of Gaming/Simulations" (115–125), and the one by Harold D. Stolovitch, "Formative Evaluation of Instructional Games" (126–137), are particularly relevant for those who are interested in games and simulations in social studies.

Thiagarajan, Sivasailam, ed., "A Special Issue on Games and Simulations: Part II: Applications, Trends, and Resources," *Improving Human Performance Quarterly*, 4 (Winter 1975).

The entire issue is devoted to games and simulation. The article by Robert E. Horn, "Trends in Simulation Gaming" (167–174), gives an overview of the trends in simulation game development. The article by Kathleen B. Frick, "Information Sources on Instructional Simulation/Games from A to Z" (175–180), is also informative.

Thiagarajan, Sivasailam, "Technique: Keep That Delicate Balance," *Simulation/Gaming*, 4 (September/October 1977), 4–8.

This article gives practical suggestions for the game leader. Thiagarajan points out that the successful game leader is one who can maintain the delicate balance between such apparently opposing elements as careful planning and intuitive implementation, decisive judgments and flexible performance, etc.

This, Leslie E., "What Is Simulation?" *American Vocational Journal*, 45 (September 1970), 20–22.

This article is a nontechnical explanation of simulation as a teaching technique and how it can be applied to vocational education.

Towler, John, Lisa Montgomery, and Judi Ward, "Simulation Games: How to Use," *Instructor*, 79 (March 1970), 96–97.

Strategies and suggestions are offered to assist elementary teachers in designing games for their courses or to adapt existing games for use in their classrooms.

Tracy, Neal H., ed., "Simulation and Gaming," *The High School Journal*, 7 (April 1974).

This entire issue is devoted to simulation and gaming. It includes the following articles: M. Eugene Gilliom, "Trends in Simulation" (265–272); Lewis E. Cloud, "Using Simulation Materials in Social Studies Instruction" (273–277); John E. Harrington, "Linguistic Enrichment and Simulation Strategies for Teaching Social Studies Concepts to the Culturally Disadvantaged: A Review of the Research" (278–291); William W. Joyce, "Selecting, Evaluating, and Designing Simulation Games for Middle School Social Studies Classes" (292–311); Raymond E. Glazier Jr., "Gaming as a Vehicle for Reflective Thought" (312–316); and Karen C. Cohen, "The Game of Empire as a Tool for Thinking" (317–328).

Twelker, Paul A., *A Basic Reference Shelf on Simulation and Gaming*. Monmouth: Oregon State System of Higher Education, 1969.

This annotated bibliography includes an extensive listing of the literature and organizations which deal with educational simulations and games. For a more comprehensive bibliography by Twelker, see also *Instructional Simulation Systems: An Annotated Bibliography*, Corvallis, Oreg.: Continuing Education Publications, 1969.

Unwin, Demuc, ed., "Special Issue on Simulation," *Programmed Learning and Educational Technology*, 13 (July 1976).

This entire issue is devoted to simulation. Of particular interest are "Simulation and Games, with Particular Reference to the Teaching of Economics," by Rupert Maclean; "Understanding and Evaluating the Use of Simulations and Games in Schools," by Peter Stopp; and "Simulation Games: An Analysis of the Last Decade," by R. Garry Shirts. The issue also includes five short simulation exercises by Pat Tansey.

Wing, Richard L., *The Production and Evaluation of Three Computer-Based Economics Games for the Sixth Grade*. Yorktown Heights, N.Y.: Board of Cooperative Educational Services, 1967.

This book gives an extensive description of the development of three computer-based games (Sumerian Game, Sierra Leone Game, and the Free Enterprise Game). It contains a rationale, examines related research, defines objectives, and provides tests for evaluation. Detailed bibliographies on computer-aided instruction and games are also presented.

Using Games and Simulations

Attiyeh, Richard E., "Policy Making in a Simulated Environment," in *Recent Research in Economics Education*, edited by Keith G. Lumsden. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970.

This article explains and discusses the Macroeconomic Policy Game developed by the author. The equations determining the model, the computer program, and collegiate student behaviors are described in detail. Suggestions for alternative classroom uses are also provided. For discussions of earlier work with this game, see F. T. Dolbear, R. Attiyeh, and W. C. Brainard, "A Simulation Policy Game for Teaching Macroeconomics," *American Economic Review*, 58 (May 1968); and Richard Attiyeh, "A Macroeconomic Model for the Classroom," in *New Developments in the Teaching of Economics*, edited by Keith G. Lumsden (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967).

Boocock, Sarane S., "Using Simulation Games in College Courses," *Simulation and Games*, 1 (March 1970), 67–77.

This article discusses the merits and alternative ways in which simulation games have been used in classes on urban sociology and social psychology.

Bower, Richard S., "Computer Time-Sharing and the Teaching of Economics," in *Recent Research in Economics Education*, edited by Keith G. Lumsden. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970.

This paper describes the use of computer-assisted instruction in the teaching of college-level economics at Dartmouth College. A specific description is given of the use of managerial economics simulations and of two simulation games, GLOOM and MACRO.

Cherryholmes, Cleo H., "Simulating Inter-Nation Relations in the Classroom," in *International Dimensions in the Social Studies*, edited by James M. Becker and Howard D. Mehlinger. Washington, D.C.: National Council for the Social Studies, 1968.

An explanation of the concept of social simulation is developed and is illustrated with a description of Inter-Nation Simulation. An earlier article describing Inter-Nation Simulation and its impact on students' attitudes can be found in "Developments in Simulation

of International Relations in High School Teaching," *Phi Delta Kappan*, 46 (January 1965), 227–231.

Cohen, Karen C., "The Game of Empire as a Tool for Thinking," *The High School Journal*, 7 (April 1974), 317–328.
The purpose of this article is to indicate ways in which productive thinking based on a game experience can be enhanced. The Game of Empire is used as an illustration throughout.

Garrison, Lloyd, "Using Simulation Sets in High School Accounting," *The Balance Sheet*, 59 (October 1977), 74 ff.
The article gives some guidelines for the effective use of simulation sets. Suggestions for motivating, using guideposts, and evaluating are included.

Geier, Charlene, "Project IN/VEST: Insurance Simulation Insures Learning," *Business Education Forum*, 32 (February 1978), 15–19.
The article is a detailed description of the use of a work-flow model office developed to replicate job positions commonly found in the automobile insurance industry.

Guetzkow, Harold, Philip Kotler, and Randall L. Schultz, *Simulation in Social and Administrative Science*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972.
In this volume the authors compile a series of overviews and case-examples of simulation in social and administrative science. Essays on general simulation models, theories, and methods in a variety of fields of social and administrative science are also included. Actual case-examples of simulation support the essays. These examples pertain to economic decision-making, psychological behavior, political processes, urban affairs, and municipal budgeting.

Humphrey, Doris J., "Review of Starpower," *Simulation and Games*, 1 (December 1970), 449–456.
The author describes classroom use of and player reactions to the game of *STARPOWER*.

Jandt, Fred E., "'Kingscity' Is Factory in Classroom with Emphasis on Communication," *Simulation/Gaming*, 4 (May/June 1977), 14–17.
The article describes the use of Kingscity—a simulation which was modeled after the GM Lordstown facility.

Johnson, R. G., "Simulation Techniques in Career Development," *American Vocational Journal*, 45 (September 1970), 30–32.
This article describes how job experience simulation kits provide

students with opportunities to experience several different types of jobs.

Joseph, Myron L., "Game and Simulation Experiments," *Journal of Economic Education*, 1 (Spring 1970), 91–96.

This article gives a review of various experimental role-playing market games at the college level. The role of the computer in such simulations is also discussed.

Joseph, Myron L. and Phillip Saunders, "Playing the Market Game," in *Recent Research in Economics Education*, edited by Keith G. Lumsden. Englewood Cliffs, N.J. Prentice-Hall, Inc., 1970.

This article describes alternative strategies and techniques for maximizing the classroom effectiveness of the Wheat Market Game. For other discussions and uses of this role-playing game, see Myron L. Joseph, "Role Playing in Teaching Economics," *American Economic Review*, 55 (May 1965), 556–565.

Kelly, Robert, "Turmoil: A Simulation Game Dealing with International Oil Trade," *Social Science Record*, 23 (Winter 1976), 16–19.

The author describes a game which was created to help students understand the complexities of the international oil trade. It was designed for use by ninth-graders but should be appropriate for grades seven through twelve.

Kourilsky, Marilyn, "Economics through Fable Simulations," *The Elementary School Journal*, 74 (December 1973), 149–157.

This article reports a study which was done to assess the level of sophistication at which fourth-graders could learn specified economic concepts through the use of a fable-simulation method of instruction. It gives a fairly detailed account of the use of fable simulations.

Kurfman, Dana G., and Ina M. Phillips, *Using Simulation to Involve Students*, Boulder, Colo.: High School Geography Project, 1970.

This booklet is a High School Geography Project teacher training kit in the use of educational games. Samples of games used in the High School Geography Project are presented and discussed to familiarize teachers with the use of such exercises.

Lumsden, Keith G., "The Promises and Problems of Games and Simulation," *Journal of Economic Education*, 1 (Spring 1970), 85–90.

This review article discusses the impact of recent games in economic education on the behavior, learning, and attitudes of students at the collegiate level. The Wheat Market Game, developed by Myron Joseph; the Macroeconomic Policy Game, devel-

oped by Richard E. Attiyeh et al.; and the microeconomic computer simulation games developed by Richard L. Schmalensee are all reviewed and described in this article. A similar review by Lumsden can also be found in *Recent Research in Economics Education* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970).

Maidment, Robert, and Russell H. Bronstein, *Simulation Games Design and Implementation*, Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

This book provides the reader with a concise description of the characteristics of simulation games. The authors provide a historical background for game-playing and address themselves to the question of what is learned through games. An actual game, Pollution Control, is included in the book and much of the book revolves around the game, spinning out a step-by-step, systematic approach to game processes, intricacies, and construction.

Miller, Richard A., "Oligopoly and Merger: A Simple Classroom Game," *Journal of Economic Education*, 2 (Spring 1971), 142–150.

This article explains the use of Duopoly and Six Suppliers in teaching college students about fundamental business behavior in oligopolistic markets. The games illustrate the oligopolistic characteristic of "mutual interdependence." The games and student reactions are described in detail.

Nelson, Warren L., "Simulation Review: Ghetto," *Simulations and Games*, 1 (September 1970), 341–345.

This article describes the reactions of sixth-grade students and teachers from inner-city schools to the game *Ghetto*.

Neubeck, Kenneth J., "Economic Inequality and Cultural Values," *Teaching Sociology*, 4 (January 1977), 167–176.

The author describes a game which he has used in teaching college courses in introductory sociology, social problems, social organization, and social stratification. The purpose of the game is to make students aware of the relationship between cultural values and inequality.

O'Grady, James P., and J. Michael O'Reilly, "Mock Negotiations: A Labor-Management Experience," *Journal of Business Education*, 52 (January 1977), 180–181.

The article describes a game that is used in an introduction to labor relations courses in junior college. The authors suggests certain procedures and ground rules based upon their own experience.

Shelly, Ann C., "Total Class Development of Simulation Games," *Social Education*, 37 (November 1973), 687–689.

This article summarizes and evaluates a developmental model which has as its purpose the designing and validating of materials and procedures for use in teaching groups of college students how to create original simulation games. The author describes the "model for simulation game development" in detail and concludes from survey data that it has both the flexibility and structure necessary for classroom use.

Swerdlow, Robert M., "Money Is the Motivator," *Man/Society/Technology*, 37 (February 1978), 14–15.

The article describes the use of a simulation that focuses upon the element of finance in the industrial model. It was designed for use within an industrial arts laboratory.

Tanner, Thomas, "Teaching about the Nuclear Power Controversy by Simulation," *Social Education*, 40 (November-December 1977), 588–589.

The article describes a simple simulation which can be used to teach about the nuclear power controversy. A bibliography of useful references is included in the article.

Wentworth, Donald R., "An Evaluation of the Use of the Marketplace Game in Junior College Economics," *Journal of Economic Education*, 6 (Spring 1975), 113–119.

This article describes the use of the game as an instructional tool. The evaluation involves a comparison of the game technique with more traditional classroom methods.

3

The Evaluation of Instructional Games and Simulations

The research on simulations and games in economics and the social sciences has been disappointing. After more than ten years and over a hundred studies basic questions such as: Are simulation games effective means of teaching factual knowledge? Do simulations develop thinking skills? Are simulation games good motivators? Can simulations be effective in changing attitudes? largely remain unanswered. Any answers we have are quite tentative and lack sufficient empirical support. In fact the only conclusion that can be drawn from most of the basic inquiries into questions such as those just listed is that some tend to support the effectiveness of games and simulations and some do not.

Criticisms of the research are not new. In the 1974 edition of the present publication, Lewis and Wentworth wrote: "Most of the research which has been accomplished in the field is suspect because of inadequate testing procedures and research design, use of unsophisticated statistics, and inability to determine important variables" (p. 71). A host of the later reviews are no more encouraging. For example, Twelker (1976) comments: "More research has been conducted, but there seems to be just as much disagreement about what simulation/gaming does, and how best it does it. One problem is that much of the research is less than adequate with respect to its design and execution." Reviews of the literature by Reiser and Gerlach (1976), Heitzmann (1976), Hunter and Clark (1977), and Shirts (1977) all contain similar statements.

There seem to be four fundamental problems that contribute to the lack of successful research efforts. First, as Shirts (1977) points out, most of the research has been done on a small scale. Such research almost inevitably addresses only those problems which are easiest and cheapest to investigate. Second, there is no standard vocabulary to define and describe simulation games and the independent and dependent variables that are at work in them. Third, testing procedures are inadequate, and the measurements employed do not seem sufficiently

sensitive to the outcomes of games and simulations. Fourth, design flaws such as lack of randomization, halo and experimenter effects, undefined treatments, and lack of control of variables such as time afflict many studies.

This chapter contains bibliographies of research studies on gaming and simulation. The first section lists reviews and critiques of the literature. The rapid increase in the number of studies has in turn led to the proliferation of reviews. The second section annotates the studies themselves. Due to the large number of studies in existence and their uneven quality, we decided to include only published research results. However, an extensive annotated bibliography containing over one hundred unpublished references, of which two-thirds are doctoral dissertations, has been prepared by the Minnesota State Center for Economic Education and is available to interested persons at no charge.

Reviews and Critiques of the Literature

Coombs, Don H., compiler, *Simulation and Gaming: The Best of ERIC* (August 1976). ERIC document* ED 126 891.

Cruickshank, Donald R., and Gerald M. Mager, "Toward Theory Building in the Field of Instructional Games and Simulations," *Programmed Learning and Educational Technology*, 13 (July 1976), 5–9.

Edwards, Stephen D., *The Use of Descriptive Studies in Simulation Game Research* (November 1975). Ed 115 67.

Heitzmann, William R., *Social Studies Simulations and Attitudinal Change: The Research Findings* (November 1976). ED 133 251.

Hunter, Robert, and Richard E. Clark, "Simulation/Gaming Research," *Educational Technology*, 17 (ly 1977), 44–46.

Reiser, Robert A., and Vernon . Gerlach, *Resc rch on Simulation Games in Education: A Critical Analysis* (April 1976). ED 122 831. Also available in shortened format in *Educational Technology*, 18 (December 1977), 13–18.

Roberts, Nancy, *Simulation Gaming: A Critical Review* (1976). ED 137 165.

Schran, Henning, and Dieter Kumpf, "Environmental Games in the United States: A Review of a Decade of Confusion," *Simulation and Games*, 3 (December 1972), 464–476.

Shirts, R. Garry, "Simulation Games: An Analysis of the Last Decade," *Programmed Learning and Educational Technology*, 13 (July 1976), 37–41. Also available in *Simulation/Gaming*, 3 (September/October 1976), 5–9.

*Eric documents are available from the Social Science Federation Consortium, Inc., Boulder, CO 80302.

Twelker, Paul A., "Examining the Research Evidence on Simulation/Gaming," *Improving Human Performance Quarterly*, 4 (February 1978), 97–104.

Wentworth, Donald R., and Darrell R. Lewis, "A Review of Research on Instructional Games and Simulations in Social Studies Education," *Social Education*, 37 (May 1973), 432–439. An adapted version of this review appeared in the 1974 revision of the present publication.

Annotated List of Published Studies on Social Science Games and Simulations

Allen, Layman E., Robert W. Allen, and James C. Miller, "Programmed Games and the Learning of Problem Solving Skills: The WFF'N PROOF Example," *Journal of Educational Research*, 55 (September 1966), 22–25.

This study examined whether learning a game like WFF'N PROOF aided in the development of more general problem-solving skills. The California Test of Mental Maturity was used as a pre- and postinstrument. As compared with a control group of junior high school students, the experimental group showed a highly significant change in the mean nonlanguage IQ score. A *t*-test analysis was the statistical technique employed. An analysis of differences between boys and girls indicated that virtually all of the main experimental differences were contributed by boys but that by simply retaking the test the girls changed almost as much as the boys changed from exposure to the logic game. This result could not be explained.

Biggs, W. D., "A Comparison of Ranking and Relational Grading Procedures in a General Management Simulation," *Simulation and Games*, 9 (June 1978), 185–191.

The purpose of this article was to compare multidimensional objective criteria performance results when ranking and relational approaches are used. Data were collected from student firms which were divided into two industries in the business policy course using the game Tempomatic IV (C. R. Scott Jr. and A. J. Strickland III, *Tempomatic IV: A Management Simulation* [Boston: Houghton Mifflin, 1975]). A total of 98 students were involved. Each team was evaluated during each period using both the relational and ranking grading system. The authors conclude that the relational approach is superior to the ranking approach since the former points up the magnitude of differences among competing teams and thereby provides more information. The authors also indicate that reliance on mechanically generated scores can lead to questionable grading practices.

Biggs, W. D., and Paul S. Greenlaw, "The Role of Information in a

Functional Business Game," *Simulation and Games*, 7 (March 1976), 53–64.

The basic objective of this study was to examine the impact of varying amounts of information on decisions and performance in FINANSIM (P. S. Greenlaw and F. W. Wyman, "The Teaching Effectiveness of Games in Collegiate Business Courses," *Simulation Games*, September 1973). Thirty-two teams were divided into groups A, B, and C. Group A received minimal information, Group B moderate information, and Group C extensive information. A one-way analysis of variance was used to analyze the data. The results indicated the teams playing FINANSIM with varying amounts of information can make similar decisions throughout game play. However, the results also indicated that similarity of decisions does not necessarily yield similar performance.

Blalock, R. O., and D. C. Brenenstuhl, "Role Preference and Vested Interest in a Bargaining Environment," *Simulation and Games* 9 (March 1978), 53–65.

Eighty students in an undergraduate wage and salary administration course were assigned to management-labor roles in a bargaining simulation based upon their preferences. Four types of groups resulted: (1) Congruent Management versus Congruent Labor, (2) Congruent Management versus Incongruent Labor, (3) Incongruent Management versus Congruent Labor and (4) Incongruent Management versus Incongruent Labor. Four hypotheses addressing the relationship of these conditions to attitudinal change were tested. Results were inconclusive although they indicated that assignment on the basis of previous attitudes tended to be influential in affecting the attitudinal change of the participants.

Brenenstuhl, D. C., "Cognitive versus Affective Gains in Computer Simulations," *Simulation and Games*, 6 (September 1975), 303–311.

The purpose of the study was to examine the affective and cognitive gains of students using the computer game The Executive Game. Two sections of a sophomore-level management course served as subjects in the experiment. From the results of this experiment it can be concluded that the simulation experience displayed some cognitive benefit to the students when used as an adjunct tool. There were significant differences in attitudes between the groups.

Cabell, D. W. E., "The Relevance of a Management Game," *Simulation and Games*, 5 (June 1974), 201–211.

This study examined two hypotheses: (1) that the degree of specialization within the group structure is significantly related to

student perceptions of relevance and (2) that the leader's style of interacting with student specialists is significantly related to student perceptions of relevance. Relevance is defined as student perception of the relationship between their activities, decisions, and interactions in the game and those duties, decisions, and relationships which they expect to be present in the real world. The original sample consisted of 216 male and female upper-division students who were taking courses in business administration. Sample size was reduced to 171 students because some students failed to turn in questionnaires and some groups did not have the required six students. Neither the specialization nor leadership style variables were shown to be significantly related to the students' perceptions of the management game as an opportunity for gaining knowledge about the decisions and relationships which a manager would encounter in the real world.

Calkins, Ralph N., "A Computerized Model of Exchange as an Aid to Teaching Price Theory," *Journal of Economic Education*, 1 (Spring 1970), 97–103.

This study evaluated the effectiveness of a computer-assisted instructional model of exchange as an aid to teaching students in college economics. In a specially constructed test, postscores for the control group were significantly below those for the experimental group. Exposure to the computer model seemed to be the best explanation of the superior performance of the experimental group, although there were other variables influencing the results.

Carranza, E., "An Assessment of the Star Power Game," *Simulation and Games*, 5 (June 1974), 219–221.

A validity assessment of the game *STARPOWER* by means of a questionnaire administered to students who participated in the game was undertaken in May 1972. There was a total of twenty-five respondents. There were thirty-eight items descriptive of both "positive" and "negative" perceptions of conflict between groups arising out of a scarcity of resources environment. A "Routine Percount" program was used in this exercise. Percount provided frequency distribution tables of the thirty-eight items of the questionnaire. Generally, responses to questions indicated that conflict between the groups in this sample was due to (1) a perceived abuse of power, (2) a perceived arbitrary imposition of rules and policies by one group, and (3) a perceived inequitable and unjust distribution of resources. In sum, 100 percent of the respondents believed that some useful knowledge about the generation of conflict can be attained from the game *STARPOWER*. In addition, with nine out of twelve items descriptive of relations between the game and our society, 50 percent and above

perceived that conditions of conflict within the game were reflective of conditions in society.

Chartier, Myron R., "Learning Effect: An Experimental Study of a Simulation Game and Instrumented Discussion," *Simulation and Games*, 3 (June 1972), 203–217.

This study attempted to determine what effect linking discussion with simulation games had upon cognitive and affective learning outcomes. Six cognitive learning outcomes, ranging from simple to complex, were measured to determine the degree and type of knowledge learned. Attitude measures were used to quantify learning in the affective domain. Simple analysis of variance coupled with Duncan's new multiple range test for unequally replicated means was used. The study indicated that the procedure of coupling simulations with discussion did not provide significant changes in content-learning outcome but it did significantly influence affective learning.

Cherryholmes, Cleo H., "Some Current Research on Effectiveness of Educational Simulations: Implications for Alternative Strategies," *The American Behavioral Scientist*, 10 (October 1966), 4–7.

The author reviews six studies involved with testing the effectiveness of educational simulations. The review indicates that only one hypothesis was validated: students report more interest in simulation activities than in more conventional classroom exercises. Learning and attitudinal changes resulting from simulations may not be as great as claimed. The author suggests some alternative strategies for using educational simulations: (1) have students design or revise an educational simulation; (2) have students attempt to validate the theory of the game with real-life data.

Craig, C. S., and L. A. Brown, "Spatial Diffusion of Innovation: A Gaming Approach," *Simulation and Games*, 9 (March 1978), 29–52.

Graduate business students at Ohio State University played the New Product Marketing Game (PROMAR). Follow up interviews designed to determine player strategies as well as number of outlets opened per time period and outlet location were examined. The purpose of the study was validation. The authors wished to determine whether the relationships observed from game play were consistent with accumulated empirical evidence and theory in geography, marketing, and regional science. The evidence did support this conclusion.

DeNike, Lee, "An Exploratory Study of Cognitive Style as a Predictor of Learning from Simulation Games." Ph.D. dissertation, Kent State University, 1973.

The purpose of this study was to utilize the cognitive style theory of Hill to determine whether any cognitive style elements are related to learning from simulation games. Twenty-four fifth-graders participated in the Bow and Arrow Hunting Game and the Crossing Place Hunting Game. Student achievement was determined by calculating a gain score. The cognitive style profiles were mapped by a test battery provided by Oakland Community College. The analysis led to several hypotheses. First, students who derive maximum cognitive knowledge from simulation game activities are likely to be those who (a) speak and listen well, (b) acquire meaning from sound, (c) empathize, (d) apparently are influenced by their peers, (e) can but usually do not exert their individuality, and (f) reason according to rules. Second, students who derive the least cognitive knowledge can be described as individuals who (a) do not speak, listen, read, or write well, (b) have difficulty empathizing, (c) seem to be physically well-coordinated, (d) exert their individuality, and (e) appear to be influenced by their peers in a positive but minor way.

A short report of this study is available in *Simulation and Games*, 7 (March 1976), 65–74.

DiMarco, N. J., and J. R. Hoffmeister, "Influence of Personality on Performance in a Financial Management Simulation," *Simulations and Games*, 8 (September 1977), 385–394.

Ninety-eight upper-level students participated in the Financial Management Decision Game (FINGAME) as part of their course requirement. Personality characteristics were measured by the Edwards Personal Preference Schedule (A. L. Edwards, *Personal Preference Schedule* [New York: Psychological Corporation, 1953), Personal Orientation Inventory (E. L. Shostrum, *EITS Manual for the Personal Orientation Inventory* [San Diego: Educational and Industrial Testing Service, 1966), and the Rotter I-E Scale (J. B. Rotter, "Generalized Expectencies for Internal Versus External Control of Reinforcement," *Psychological Monographs Generalized and Applied*, Whole No. 609, 1966). The study demonstrated no significant relationships between personality variables and performance.

Dittrich, J. E., "Realism in Business Games: A Three-Game Comparison," *Simulation and Games*, 8 (June 1977), 201–210.

The purpose of this paper is to describe a research study in which a comparison is made of the perceived realism of three popular computerized business management games. Six classes of business policy students in two universities were asked to provide perceptual data on the realism of the computerized business management game which they were currently using. A total of 203

respondents completed the questionnaires. The findings indicate that there is a significant difference in perceptions of realism and the learning contributions of the games.

Dooley, B. J., "Research on the Market Game," in *Economic Education Experiences of Enterprising Teachers*, edited by George Dawson. New York: Joint Council on Economic Education, 1969. Vol. 6, p. 70.

This study compared performances between fourth-grade students taught with the Market Game, which was developed for use in the University of Chicago Elementary Economics Program, and fourth-grade students taught by a conventional lecture method. Although the adjusted mean score of the experimental group was higher, no significant differences in cognitive performance were found. However, more participation and enjoyment on the part of students using the game was observed.

Emery, E. D., and T. P. Enger, "Computer Gaming and Learning in an Introductory Economics Course," *Journal of Economic Education*, 3 (1972), 77–85.

This article is an attempt to evaluate three computer games. The "hands on" access to a computer or terminal permitted students to play the game(s) at their convenience. The computer provided immediate feedback about the students' decisions. The results of the effectiveness of these games are based upon pre- and post-test scores which tested simple application, complex application, and recognition-understanding. Significant results were observed in performance when game-playing was used as a technique of instruction as compared to customary teaching procedures.

Fennessey, G. M.; S. A. Livingston; K. J. Edwards; S. J. Kidder; and A. W. Nafziger, "Simulation, Gaming, and Conventional Instruction: An Experimental Comparison," *Simulation and Games*, 6 (September 1975), 288–302.

This article presents the findings of an experiment that compared the effectiveness of a simulation exercise, a simulation game, and conventional instruction at the elementary and junior high school levels. The subjects were 1,874 students in sixty third-, fourth-, and eighth-grade classes in Catholic parochial schools in the Baltimore area. Multivariate analysis of variance was conducted on each set of classroom mean scores. The most striking feature of the results is the small size of the differences among the three treatment groups. For all practical purposes, the three treatments were equally effective.

Fisher, Judith E., "Competition and Gaming: An Experimental Study," *Simulation and Games*, 7 (September 1976), 321–328.

This study was directed to the need for further research into the function of competition as a characteristic of educational games. The effects of variations in competitive form on the cognitive learning outcome of an educational game were studied. The three competitive forms were: one-to-one interpersonal competition, one-to-two interpersonal competition, and one-to-one inter-group competition. The experimental treatment utilized The Dictionary Game. A post-test-only control group design was employed using ninety-six undergraduate students. Students who played the game scored significantly higher on the post-test of cognitive skills. Students in the one-to-two competitive format did best.

Fletcher, J. L., "The Effectiveness of Simulation Games as Learning Environments: A Proposed Program of Research," *Simulation and Games*, 2 (1971), 425–454.

This article presents the need for sound evaluative research in the area of games and simulations. Key problems in the structure of current game models are identified and discussed with evaluation in mind. A distinction is made between dependent and independent variables and a method of evaluation of process and content acquisiton is discussed.

Granberg, D.; J. S. Stevens; and S. Katz, "Effect of Communications on Cooperation in Expanded Prisoner's Dilemma and Chicken Games," *Simulation and Games*, 6 (June 1975), 166–187.

Forty-eight pairs of subjects each played sixty trials of a 5x5 non-zero-sum game. Half of the pairs were men and half were women. Half the pairs played the Prisoner Dilemma Game while half played Chicken. Half had an opportunity to communicate by sending one or more of nine structured messages after trials 15, 30, and 45, while the other half took a break with no communication after the same trials. The experiment was a 2x2x2x4 (sex by game by communication by blocks) factorial design. Both game and communication produced reliable and significant effects. A replication of the study was done adding an unstructured communication condition to determine whether it was the structured nature of the communication which was responsible for the strong effect. This study involved sixty female subjects; again the communication effect was large and highly reliable.

Groome, A. J., "Interaction Effects in Life Career Simulation: Sex and Ability of Role and Participants," *Simulation and Games*, 7 (September 1975), 312–319.

The problem was to assess the effects of participation in a simulation activity—Life Career—on high school students. The study

examined the interaction effects of the individual differences of the players, of the roles they take, and of the team partners. From the eleventh-grade population of nine high schools in Regina, Saskatchewan, Canada, blocked by sex and ability, sixteen students per block in each school were randomly chosen and alternately assigned to experimental and control groups. The data were tested with a factorial design and a fixed effects analysis of variance. Since there was no increase in career maturity after the simulation experience and since the experimental design had a great power to detect small differences, it was concluded that if the simulation Life Career did affect vocational development, the measuring instruments did not detect them. Lack of reliable data on the intervening variable role-taking was disappointing since generalizations could not be made from the observed differences.

Hoffmeister, J. Ronald, "Influence of Personality on Performance in a Financial Management Simulation," *Simulation and Games*, 8 (September 1977), 385–394.

This study is based upon the Financial Management Decision Game by Brooks (L. D. Brooks, *The Financial Management Decision Game* [Homewood, Ill.: Irwin, 1975). The subjects were 118 college upperclassmen. The personality variables of achievement, order, autonomy, and endurance (Edwards Personal Preference Schedule 1953), time competence (Personal Orientation Inventory, Shostrom 1966), and Locus of Control (Rotter I-E Scale 1966)—all three are fully identified in the entry for DiMarco and Hoffmeister, above—were measured in a combined questionnaire. Ninety-eight of the questionnaires provided usable data. Results of the study failed to support the hypothesized relationships between performance (as measured by accumulated game wealth) and the personality variables.

Lee, R. S. and A. O'Leary, "Attitude and Personality Effects of a Three-Day Simulation," *Simulation and Games*, 2 (September 1971), 309–348.

This study used a controlled experiment to investigate the learning effects, as measured one month later, of a three-day version of the Inter-Nation Simulation. The participants in this experiment were high school seniors. The article identifies many positive assumptions regarding the use of games and simulations in the classroom, describes the experimental design used, presents actual observations and discussions, and supplies the reader with the results of the experiment. The results were numerous and varied. Generally this simulation generated a significant amount of reflective thought and taught process and personality characteristics to a high degree. The games did not have a detrimental effect on content.

Livingston, Samuel A., "Effects of a Legislative Simulation Game on the Political Attitudes of Junior High School Students," *Simulation and Games*, 3 (1972), 41–51.

This is the report of two investigations of the effects of the game Democracy on the political attitudes of junior high school students. The game focuses on the process of logrolling, which the players, assuming the role of congressmen, quickly discover to be the most effective way to satisfy their simulated constituencies. The testing instruments were designed by the investigator. The population used in the study were eighth and ninth-grade students from neighboring schools in Baltimore. The results indicated that students became more tolerant of congressional logrolling after playing the game. No evidence was found to indicate that students had improved feelings of political efficacy or that their interest in politics changed. Finally, no correlation was found between the changes in students' attitudes and their understanding of the game.

Lloyd, John W., "Role Playing, Collective Bargaining, and the Measurement of Attitude Change," *Journal of Economic Education*, 1 (Spring 1970), 104–110.

This study examined whether attitudes are affected by role-playing in a collective bargaining simulation and whether any change in attitude is related to the role played. Students were given pre- and postquestionnaires on reactions to statements explaining labor-management conflict. Chi square statistical analysis was employed. The results were inconclusive.

Marston, Glenn F., and Kenneth S. Lyon, "Learning and Attitude Change of Students Subjected to a National Income Simulation Game: Some Further Evidence," *Journal of Economic Education*, 7 (Fall 1975), 20–27.

The article reports three studies done in 1970, 1971, and 1972 at the Utah State University Center for Economic Education. The study, which was performed on a large introductory college macroeconomic class, showed that poor students were penalized in terms of achievement for having participated in the simulation while very good students appeared to have been aided by the simulation. The 1971 and 1972 studies used a matching procedure rather than random assignment to experimental and control groups. Taken generally, the 1971 and 1972 results would indicate that for all levels of ability the students who participated in the economic games benefited from their involvement, although some of these results are not significantly different from zero at the 95 percent level.

Marston, Glenn F., Kenneth Lyon, and Richard Knight, "Learning and Attitude Change of Students Subjected to a National Income Simulation Game," in *Research Papers in Economic Education*, edited by Arthur L. Welsh. New York: Joint Council on Economic Education, 1972, 159–170.

The authors used a systematic statistical procedure to evaluate the effects of a national income simulation model on student achievement and interest. Two experiments took place, one on a college level, the other on a high school level. In both experiments control and experimental groups were used. The control groups experienced the same teaching process except that they did not take part in the simulation experience.

The results indicated that the conventional teaching method supplemented by a national income simulation model is neither superior nor inferior to the conventional method as far as understanding of macroeconomics principles and interest in economics is concerned.

Marts, John A., "Paying Your Way: The Development and Evaluation of a Personal Finance Simulation Game," *Simulation and Games*, 8 (June 1977), 189–200.

The author describes the development and evaluation of a personal finance simulation game. The game was evaluated by an author-written achievement test. Reliability and validity data are reported. Student achievement was evaluated with respect to sex, grade-point ratio, and socioeconomic status. Students in the study did learn certain aspects of personal finance and career awareness from playing the game regardless of their sex, social status, grade-point ratios, or whether or not they won the game.

McKenney, James L., and William R. Dill, "Influences on Learning in Simulation Games," *The American Behavioral Scientist*, 10 (October 1966), 28–32.

This study measured and evaluated the relative performance of 650 business administration students grouped into twenty-one teams playing a college-level management simulation. The study evaluated student attitudes, influence of faculty on student behavior, and composition of student groups on team performance. The results indicated that (1) students did not perceive their goals well except for the groups attempting to concentrate on profit-making; (2) students did not evaluate their experience in depth; (3) teams experienced in simulation did not do better than inexperienced teams; (4) consulting by faculty was misunderstood and resented by students; and (5) differences in ability influenced how well students played and understood the game.

Remus, W., "Who Likes Business Games?" *Simulation and Games*, 8 (December 1977), 469–480.

Eighty-eight undergraduate students in an introduction-to-business course played the Executive Game, with each subject acting as an independent firm. A questionnaire was designed to measure the student's attitudes toward the game experience. The questionnaire data were analyzed in conjunction with data on final team rank and return-on-investment (ROI). Results indicated a strong linear relationship between final team rank and enjoyment of the game. High-ranking teams liked the game better.

Robinson, James A., Lee F. Anderson, Margaret G. Hermann, and Richard C. Snyder, "Teaching with Inter-Nation Simulation and Case Studies," *American Political Science Review*, 60 (March 1966), 53–65.

This study compared the relative effectiveness of simulation and case studies as supplemental units of study for undergraduate political science students. Chi-square and *t*-test statistical techniques were employed to analyze data on student attitudes, student behavior, and cognitive learning. No significant differences were found, but some indirect complex relationships did exist and were identified.

Robinson, J. N., "Are Economic Games and Simulations Useful?: Some Evidence from an Experimental Game," *Simulation and Games*, 9 (March 1978), 3–21.

An economic policy game was played with teams from 228 British schools. A follow-up questionnaire asked six questions in a choice response format: (1) Did the players enjoy the game? (2) Would you like to enter again next autumn? (3) How difficult did the players find the game? (4) How did you use the game? (5) To what extent did you integrate the game into economics teaching? and (6) Have you any general comments on the game? An overwhelming percentage of the responses to these questions was very positive.

Schellenberger, R. E., and F. G. Boseman, "Business Gaming: An Empirical Appraisal," *Simulation and Games*, 5 (December 1974), 383–402.

The purpose of this research is to test hypotheses regarding the perceptions of students toward management games as a teaching aid, especially in the business policy course. A second purpose is to test actual learning attainment. The sample included 74 students in four sections of the business policy course taken by graduating seniors at Temple University. Students were randomly assigned to the control and experimental conditions. The control groups used four cases while the experimental groups played the Executive

Game. A questionnaire was administered to all groups during the final class period. The questionnaire dealt with (1) interest and motivation, (2) attitudes, and (3) perceptions of learning. Actual learning was assessed through performance on a short case. The results indicated no significant differences between the experimental and control groups on these variables.

Schild, E. O., "The Shaping of Strategies," *The American Behavioral Scientist*, 10 (November 1966), 1–4.

This study suggests that previous research in games and simulation has been inadequate because it measured the wrong variables. Most variables previously measured are unrelated to the kinds of behavior needed for winning. The researcher suggests that simulations shape student behavior by reinforcement (winning) and that this is how games should be evaluated, i.e, does the simulation set up contingencies which reinforce effective strategies? The study used four groups of secondary and college students playing the Parent-Child Game. By computing gammas for each round in the game, the study found consistency from group to group in the type of strategy used by players to win the game. Conclusions indicated that the behavior of players was shaped by the structure and rules of the game, not other influences, and that strategies learned in one game were transferred to another.

Sharon, S., and C. Colodner, "Counselor: A Simulation Game for Vocational Decision-Making," *Simulation and Games*, 7 (June 1976), 193–208.

The purpose of the study was to evaluate the game Counselor with respect to four hypotheses: (1) students will have a more differentiated concept of personality, (2) students will be more aware of the potentially wide range of occupational choices open to people, (3) students will be aware of the temporary and alterable nature of occupational decisions, and (4) students will be aware of the environmental and personal factors which can influence occupational decisions. The subjects were students from the tenth and eleventh grades in a vocational high school in Israel. The game's effectiveness was assessed by an open-ended questionnaire designed to elicit the extent to which students achieved the objectives. An analysis of variance was performed on the post-test data with the pretest scores as a covariant. The significant increase in the total mean score on the questionnaire for the experimental in contrast with the control group reflects the game's effectiveness.

Silver, B. B., "Group Success and Personal Commitment in Game Simulations," *Simulation and Games*, 5 (December 1974), 415–424.

The study examined the relationships among group success, achievement of personal goals, and commitment to group. The subjects were 52 students who were randomly distributed into three sets of four simulated groups each. The game-simulation was a modified *SIMSOC* (W. Gamson, *SIMSOC: Simulated Society, Instructors' and Participants' Manuals* [New York: Free Press, 1969]). Subjects answered pre- and post-test questionnaires. The results indicate that the relationship between commitment to the original group and the success of that group at achieving a common goal is statistically significant, but that the relationship between commitment to the original group and personal goals is not. Another finding is that the failure of a group to reach a stated goal may, under certain conditions, result in increased attraction to a group. The main condition is that the failure is perceived by the members as arbitrarily imposed by an external source.

Stahl, Albert F., "Mode of Presentation and Subjects' Affective Reactions to the Resolution of Simulated Problems," *Simulation and Games*, 1 (September 1970), 263–279.

This study attempted to learn how student affective reactions to a simulation might be affected by the mode of presentation of the simulation. The Moodes Adjective Checklist (MACL) was used as a measure of change. The statistical analysis used analysis of variance and Mann-Whitney *U* tests. The study indicated that the mode of presentation does affect student attitudes.

Starbuck, William H., and Ernest Kolrow, "The Effects of Advisors on Business Game Teams," *American Behavioral Scientist*, 10 (November 1966), 28–30.

This study tested the consequences of adding advisers to teams of graduate students playing the UCLA Executive Decision Game. Profit was used as a criterion for measuring the results of decisions in the business game. Employing a *t*-test analysis, no significant differences were found in performances between the control and experimental groups. A regression analysis was used to test the effect of time on performance. The results suggested that the game might not have been played long enough for the superiority of the experimental group to become evident. The advisers had little success in making the game a laboratory for sophisticated decision models, but they found the game an excellent medium for reteaching fundamental concepts and for uncovering and correcting gaps in basic understandings. It was also found that the imposition of advisers did reduce the degree of perceived friendliness in the teams' interpersonal relations.

Stembler, William A., "A Comparison of Effects of a Programmed

Simulation and a Written History in Teaching Cognitive Information," 1973.

The study addressed two questions: (1) Can a simulation game (designed and programmed to teach cognitive information) teach more cognitive information than a more frequently used method of instruction, such as a written history? (2) Will students of below-group mean IQ using the programmed simulation display gains comparable to those displayed by students of above-group IQ? The game and written text were developed by the researcher. Subjects were 100 eighth-grade students with a mean IQ of 115 from a suburban school district. Subjects were randomly assigned to the game and written conditions. The study concluded that when compared to a written history, the programmed simulation proved to be more effective in imparting cognitive information for students of both the high- and low-IQ groupings.

A brief summary of this study is available in *Simulations and Games*, 6 (December 1975), 393–403.

Van Steenburg, Robert, and David Lauscher, "Effectiveness of a Short-Term Simulation as a Teaching Device in Political Science Courses," *Simulation and Games*, 8 (December 1977), 439–460.

The study was designed to assess the impact of an author-designed simulation, Foreign Policy Decision-Making: An Exercise, on over six hundred students in twenty-two classes. Two basic hypotheses were studied: (1) Students participating in a simulation will reveal more interest in such an exercise than in more conventional activities; and (2) students participating in a simulation will reveal increased empathy for the problems decision-makers confront in foreign policy. Students were given an identical questionnaire before and after participating in the simulation. The same questionnaire was administered to a panel of nine experts to determine the attitudes of policymakers. The gamma statistic and *t*-tests were used to analyze the data. Results indicated that the role-playing experience did generate changes in attitudes of students. The attitudes moved toward those expressed by experts. Inexperienced students demonstrated greater change than experienced students.

Wentworth, Donald R., "The Effectiveness of a Learning Game for Teaching Introductory Economics in Selected Two-Year Colleges". Ph.D. dissertation, University of Minnesota, 1972.

This study attempted to measure the influence of a commercially available game, *MARKETPLACE*, on student achievement in economic understanding, student attitudes toward the instructional process and selected economic concepts, and teacher student behavior in the classroom. The data were collected from a total of

149 students taking their first course in economics at two junior colleges. Students were randomly assigned to experimental and control classes with common instructors. The measuring instruments used were the *Test of Understanding in College Economics*, the Semantic Differential Attitude Scale, the Reciprocal Category System, and the Equivalent Category System. Results from the use of regression models, factor analysis, and behavior observation analysis revealed that students in the experimental class achieved significantly less understanding in college economics, demonstrated no difference in attitudes toward learning, and exhibited no significantly different learning behavior than did the control group, with the exception of the actual time devoted to playing the *MARKETPLACE* game. During game play the affective climate of the class became more positive and student involvement in the learning process was more active but there was little or no carry-over in this behavior to the classroom activities after the game playing had concluded.

This study is also summarized in Donald R. Wentworth and Darrell R. Lewis, "An Evaluation of the Use of the Marketplace Game in Junior College Economics," *Journal of Economic Education*, 6 (Spring 1975), 113–119.

Wing, Richard L., "Two Computer-Based Economics Games for Sixth Graders," *American Behavioral Scientist*, 10 (November 1966), 31–33.

This study experimentally examined whether individualized computer learning games in economics could be played by sixth-grade students and how this exercise compared to conventional teaching techniques in learning effectiveness. Two experimental groups and one control group were pre- and post-tested with cognitive tests developed specifically for this project. They were also given a retention test several weeks after the post-test. Employing a *t* test, it was found that sixth-grade students could use and understand the computer games without difficulty. Interest among students was quite high. Although no significant differences were found in the amount of learning which took place between the experimental and control groups, it was found that students in the experimental group attained approximately the same amount of learning with considerably less investment of time.

Wolfe, J., "Correlates and the Measures of the External Validity of Computer-Based Business Policy Decision-Making Environments," *Simulation and Games*, 7 (December 1976), 411–438.

The study addresses the question of the short-term methodology necessary to test for the existence of external validity. After describing the two groups (74 business school seniors and 31 practicing business people), the paper presents: (1) an analysis of

three cognitive learning outcomes; (2) a critical incident study of perceived effective performance behavior; (3) a summary of each group's (a) financial and operating results and (b) general comparative characteristics; and (4) a study of the correlation between real-world career success and predicted game success. The study concludes that "it appears that complex business games may have high external validity as business policy and decision-making teaching aids."

4

Annotated List of Games and Simulations for the Teaching of Economics

This chapter contains an alphabetized, annotated list of games and simulations that are currently available for teaching economics. Along with a brief description of each game the reader will also find information about its distributer, cost, subject, suggested grade level, participant limits, and playing time. The complete addresses of distributors appears in Chapter 5.

It is worth noting that the games listed do not include all the economics games produced over the last decade. We have listed only the games of publishers who responded to our letters of inquiry. Because of this, a teacher can be relatively sure that any game selected from this list is readily available. Price information is for guidance only. Publishers change prices frequently and potential buyers should inquire about the prevailing price before sending purchase orders.

Game:	ASSEMBLY LINE
Source:	Canadian Foundation for Economic Education
Subject:	Specialization and mass production
Grade level:	Elementary
Playing time:	2-3 hours
No. of participants:	20–30
Cost:	Free

ASSEMBLY LINE simulates the mass production of an automobile in the elementary classroom. The game provides patterns for the paper construction of an automobile.

Game:	BAFA' BAFA'
Source:	Simile II
Subject:	A cross-cultural simulation

Grade level:	Senior high school
Playing time:	1–2 hours
No. of participants:	6–40
Cost:	$35.00

Participants are briefed on the general purposes of the simulation and divided into two groups or "cultures." They are then introduced to the values, expectations, and customs of their new culture. The two cultures have very different value structures. Once the cultures are set up observers are exchanged. Each member of each society visits the other society. When everyone has had a chance to visit, the game is ended. The participants then discuss and analyze the experience. The cultures' values are introduced via cassette tapes provided in the game.

Game:	BALANCE
Source:	Interact
Subject:	Ecology; economic goals and decisions
Grade level:	Senior high school
Playing time:	3o hours
No. of participants:	20–30
Cost:	$14.00

The first hour simulates the last 150 years of U.S. history. Fifteen participants are animals; four are Indians; the rest are settlers who dominate and kill animals, fight Indians, and subdue the wilderness until their population soars to over 100,000. Participants are then divided into families of four members each living in Ecopolis, a city with many ecological problems. Interviewing parents and adults plus reading about pollution culminate in confrontations over what social action to pursue. Before an essay evaluation ends the game, participants conduct an ecological survey of their community and hold a one-hour forum in which they argue about the ecological balance of their own environment.

Game:	BALDICER
Source:	EMI
Subject:	World economy
Grade level:	Senior high school
Playing time:	2–4 hours
No. of participants:	10–20
Cost:	$25.00

The objective of this simulation game is to experience the interdependence of the world economy. The participants also gain increased awareness of related issues such as the population explosion, inflation, unequal distribution of resources and technology, and competing styles of economic organization.

Game:	BANKING
Source:	Didactic Systems, Inc.

Subject:	Economics, banking
Grade level:	Senior high school
Playing time:	2-5 hours
No. of participants:	Teams of 6
Cost:	$13.30 for 30 participants plus $3.85 for teacher's guide

Through simulation and role-playing, participants in the game have a chance to observe, analyze, and solve problems in a specific field of the economy. The game involves the financial activities and decisions of commercial banks. It serves to illustrate that a bank is both a profit maximizer and an influential factor in stimulating business and encouraging local economic development through its transactions.

Game:	EL BARRIO
Source:	Berkeley Gaming Project
Subject:	Immigrant economic mobility
Grade level:	Senior high school-college
Playing time:	2-3 hours
No. of participants:	8-30
Cost:	$25.00

This game embodies the forces affecting a Latin immigrant to the big city in North America. Individuals must acquire a physical skill, build a social network, learn how to use a vehicle, and decide whether to collaborate with the system or fight it. Participants may aim to become leaders in the Latin community, join the system and graduate to the suburbs, or move up and out still contesting.

Game:	BAZAAR, A Simulation of Barter and Monetization.
Source:	American Universities Field Staff
Subject:	Barter and monetization in a subsistence economy
Grade level:	Senior high school-college
Playing time:	One class period minimum. Can be extended with increasing sophistication among traders to five class periods
No. of participants:	3 or more (individuals play on one of three teams)
Cost:	$5.00

Participants role-play farmers, nomads and shopkeepers in Aq-Kupruk; the microeconomy of a town in northern Afghanistan. Subsistence living is presented in the context typical of the dry-land people of Afro-Eurasia.

Game:	BIG BUSINESS
Source:	History Simulations
Subject:	Business in the late 1800's

Grade level: Junior-senior high school
Playing time: 3–4 hours
No. of participants: 18–40
Cost: $15.00

BIG BUSINESS is a simulation of the unregulated growth of big business in the United States in the late 1800's. Each student is given a fixed amount of resources in order to run either a steel, oil, railroad, or banking company. These companies compete with one another in order to sell their products and services to the public. By using methods employed by business leaders in the late 1800's, students learn how unregulated growth of big business occurred during this period.

Game: BLIGHT
Source: Instructional Simulations, Inc.
Subject: Urban studies
Grade level: Junior-senior high school-college
Playing time: 3–8 hours
No. of participants: 20–40
Cost: $45.00 plus shipping

BLIGHT explores the social dimensions of community decline. It deals with the sectors, problems, values, and issues that both prompt change and inhibit community renewal.

Game: THE BLUE WODGET CO.
Source: Prentice-Hall, Inc.
Subject: Business structure
Grade level: Elementary-junior high school
Playing time: 2–4 hours
No. of participants: 20
Cost: Available in *Simulation Games and Learning Activities Kit for the Elementary School* at $12.95.

In this role-play simulation the participants become stockholders, managers, and personnel of a manufacturing concern. They must contend with other participants who represent concerned citizens in the community.

Game: BUDGET
Source: Interact
Subject: National budget
Grade level: Junior-senior high school
Playing time: 2–4 hours
No. of participants: 40
Cost: $14.00

This role-play simulation allows participants to research specific "budgeted" agencies in the federal government and attempt to reach consensus on a budget for the country. Special interests force compromise and negotiation.

Game:	BUDGETING GAME
Source:	Changing Times Education Service
Subject:	Consumer economics
Grade level:	Junior-senior high school
Playing time:	2-4 hours
No. of participants:	Teams of 4
Cost:	$8.95

Participants simulate a middle-income family of four earning $10,000. They must decide how to spend their money over a twelve-month period. The objective is to keep family spending equal to or less than the budget allotment. In this way participants learn that families make different choices about spending and saving, depending on their way of living, their needs and wants, their interests, likes and dislikes, hobbies, and family goals.

Game:	BUDGETS AND TAXES
Source:	EMI
Subject:	Community decisions
Grade level:	Junior-senior high school
Playing time:	4-6 hours
No. of participants:	6-20
Cost:	$6.00

Participants find themselves first in the roles of Riverdale's public officials, submitting budget requests for the year—then in the roles of private citizens who are affected by increases or cutbacks in services and taxes. Participants can increase spending in various departments without raising taxes as long as they can convince other departments to decrease spending. If that isn't possible, taxes must go up. The goal is to give the community the kinds of services and programs that people are willing to pay for with their tax dollars.

Game:	BUY AND SELL
Source:	EDU-GAME
Subject:	Consumer economics
Grade level:	Senior high school
Playing time:	3 hours
No. of participants:	30
Cost:	$2.00

BUY AND SELL transforms the classroom into a business community. Banks, factories, wholesale distributors, and retail stores are set up. Students assume the roles of industrial executives, loan officers, salespersons and consumers. Businesses compete for the most profit while consumers try to get the best buy. At the conclusion of the game the class has the opportunity of assuming the roles of legislators in an attempt to determine what kinds of laws, if any, are necessary for the business and consumer community.

Game:	BUYER BEWARE
Source:	EDU-GAME
Subject:	Consumer awareness
Grade level:	Senior high school
Playing time:	3 hours
No. of participants:	30 plus
Cost:	$2.00

BUYER BEWARE is a simulation game designed to make students aware of what to look for when shopping. Students must buy a total of ten products from four department stores whose products vary in quality, price, and service and warranty policies. Store owners compete against one another for profit, while consumers compete for value points. The simulation includes a section on consumer protection legislation.

Game:	CARIBOU HUNTING
Source:	Curriculum Development Associates, Inc.
Subject:	Culture and resource use
Grade level:	Elementary
Playing time:	1-2 hours
No. of participants:	6-30
Cost:	(This game is available only as a part of a total curriculum of which CARIBOU HUNTING is a component.) Films are also available in 8 mm. or 16 mm.

CARIBOU HUNTING allows participants to explore relationships between technology, social organizations, and culture. Participants assume the role of Netsilik Eskimos of Pelly Bay and attempt to resolve the cultural and economic problem of how best to kill enough caribou to survive the winter.

Game:	CENTER CITY
Source:	EMI
Subject:	Urban poverty
Grade level:	Junior high school
Playing time:	2-3 hours
No. of participants:	12-27
Cost:	$15.00

CENTER CITY helps the participants experience what it's like to be poor in a large city. As junior high age residents they spend time in such areas as home, school, community, church, extracurricular activities, and the streets. Maximum points are earned when participants unite across ethnic lines to overcome inadequate housing, food, recreation, and safety conditions.

Game:	CHARGE
Source:	Paul S. Amidon & Associates, Inc.

Subject: Charge accounts
Grade level: Senior high school
Playing time: 2–3 hours
No. of participants: 10
Cost: $17.25

This role-playing simulation allows participants to purchase goods and services during a simulated twelve-month period.

Game: THE CITIES GAME
Source: Psychology Today Games
Subject: Urban affairs
Grade level: Senior high school
Playing time: 1–3 hours
No. of participants: 4–8
Cost: $6.95 plus shipping and handling

This is a game of negotiations. There are four power roles—business, government, slum dwellers, and agitators. The object of the game is to acquire as much money and power as possible. This is done by collecting "rewards" from the game treasury or by negotiating "side payments" from other participants. The winner is the participant with the most money at the end of the game. The game ends after ten voting periods or when the Future City is reached.

Game: CLUG
Source: Urbex Affiliates, Inc.
Subject: Community land use
Grade level: Senior high school
Playing time: 3–20 hours
No. of participants: 5–25
Cost: $75.00 plus postage

The Community Land Use Game (CLUG) is a board game which abstracts a small number of basic attributes of cities and their surrounding territories on the basis of which players build, operate and maintain their own community. Play of CLUG begins with each of three to five teams in possession of capital with which they seek to buy land, to construct commercial or residential properties, and to make profitable investments. Investment opportunities arise through gaining employment for residential properties, hiring employees to put industries into operation, or gaining customers for service establishments from among the community's residential units.

Game: COLLECTIVE BARGAINING
Source: Didactic Systems, Inc.
Subject: Economics, collective bargaining
Grade level: Senior high school-college
Playing time: 2–5 hours

No. of participants: Teams of 6
Cost: $13.30 for 30 participants plus $3.85 for teacher's guide

COLLECTIVE BARGAINING introduces participants to a crucial phase of labor-management relations. It is a model that allows participants to simulate the atmosphere and conditions that prevail during the negotiations of a new labor contract.

Game: COMMUNITY
Source: Didactic Systems, Inc.
Subject: Economics, community affairs
Grade level: Senior high school
Playing time: 2-5 hours
No. of participants: Teams of 6
Cost: $13.30 for 30 participants plus $3.85 for teacher's guide

Through the use of a model, this game helps participants to become aware of some of the economic principles and problems involved in running a community, the relationships between wages and profits generated by local industry, and the tax-expenditure problems of local government. The objective of the game is to create the most attractive, progressive community possible. Participants measure success by the number of improvements in the community, by wage rates, and by the prosperity of local industry. The game is intended to acquaint participants with the public sector of the economy and illustrate the basic problems of selecting and financing public services.

Game: COMPETITION OR CONTROL?
Source: South-Western Publishing Co., Inc.
Subject: Price regulation
Grade level: Junior-senior high school
Playing time: 1 hour
No. of participants: Up to 42
Cost: Part or a set of five economic simulations; $50.00 per set.* A teacher's guide accompanies the set.

Within most communities of the United States, apartment rentals are handled on a competitive basis without rent controls. In some areas, however, rental properties may be rent-controlled. In this game a comparison is made between tenants seeking similar rental apartments in a free competitive market and those seeking rental units in rent-controlled housing and public housing. The main objective of this game is to familiarize the participant with the role government plays in certain housing markets to protect the consumer.

*The other South-Western simulations in the set are COMPETITION OR SUBSIDY?; COMPETITIVE EXCHANGE MARKET: LIMITED, COMPETITIVE MARKET: and LIMITED MARKET.

Game:	COMPETITION OR SUBSIDY?
Source:	South-Western Publishing Co., Inc.
Subject:	The market
Grade level:	Junior-senior high school
Playing time:	1 hour
No. of participants:	Up to 42
Cost:	Part of a set of five economic simulations (see footnote to COMPETITION OR CONTROL?); $50.00 per set. A teacher's guide accompanies the set.

This game introduces the participant to the free competitive market in which items are bought and sold from a company in competition with many other companies. They are also exposed to economic conditions in which the government will offer a subsidy. This game uses peanuts as the commodity.

Game:	COMPETITIVE EXCHANGE MARKET
Source:	South-Western Publishing Co., Inc.
Subject:	Stock market
Grade level:	Junior-senior high school
Playing time:	1 hour
No. of participants:	Up to 42
Cost:	Part of a set of five economic simulations (see footnote to COMPETITION OR CONTROL?); $50.00 per set. A teacher's guide accompanies the set.

This game acquaints participants with the buying and selling of common stock on the stock market. Participants learn about the stock exchange, on which corporate securities are traded, and are introduced to terminology such as broker, stockholder, dividend, and stock certificate. Participants learn how changing financial conditions induce some shareholders of a given company to sell their stock. These same conditions induce other persons to buy stock. In this game, common stock of the DC TRAN A COMPANY is bought and sold.

Game:	CONSUMER
Source:	Bobbs-Merrill Educational Publishing
Subject:	Consumer education
Grade level:	Senior high school
Playing time:	2-4 hours
No. of participants:	11-34
Cost:	$40.00

CONSUMER is a unit on consumer buying processes. It involves the players in the problems and economics of installment buying. The purpose of the exercise is to teach students how to calculate true interest rates, how to negotiate contracts with credit managers, and the

problems and economics of budgeting and buying. Participants assume the roles of consumers, credit agents, and store owners. Consumers compete to get maximum pleasure from their purchase and minimum credit charges; credit agents compete for the best terms to the most people. Consumers must decide on what, whether, and when to buy; whether and when to use credit; creditors must decide to whom and under what terms to give credit. (This is also available as a computer game which can only be played by one person at a time.)

Game:	CONSUMER DECISION
Source:	EDU-GAME
Subject:	Consumerism
Grade level:	Senior high school
Playing time:	3–4 hours
No. of participants:	30
Cost:	$2.00

CONSUMER DECISION is a simulation game in which "family groups" are faced with the problem of budgeting a limited income. The students are asked to "purchase" consumer goods and services, arrange for loans, make time payments, and prepare for financial emergencies. Emphasis is on financial planning which can help provide the "family" with all the basic necessities as well as some luxuries.

Game:	CONSUMER REDRESS
Source:	Changing Times Education Service
Subject:	Consumer rights
Grade level:	Junior-senior high school
Playing time:	Game is part of total unit. Time depends on amount of material used.
No. of participants:	30
Cost:	$8.95

This game allows participants to identify consumer rights in the marketplace: the right to safety, the right to choose, and the right to be heard. It also presents responsibilities related to these rights and issues involved in consumer law.

Game:	CRISIS
Source:	Simile II
Subject:	International political and economic relations
Grade level:	Junior-senior high school
Playing time:	2–6 hours
No. of participants:	25–35
Cost:	$25.00 for 25-student kit; $30.00 for 35-student kit

The purpose of CRISIS is to teach participants the balance-of-power concept and the dangers and rewards of seeking military and peaceful solutions to international problems. Participants assume the roles of

nations faced with the problem of resolving a tense situation and guarding national interests concerning a mining area of enormous importance to the world. They must develop negotiation strategies and decide whether or not to go to war. Their objectives are to secure Dermatium (the element in the mines) to prevent destruction of their nations by war and to secure world peace.

Game:	CRISIS IN MIDDLETOWN
Source:	EDU-GAME
Subject:	Labor dispute
Grade level:	Junior-senior high school
Playing time:	3–4 hours
No. of participants:	30
Cost:	$2.00

CRISIS IN MIDDLETOWN is a simulation game which creates an atmosphere of labor unrest in a semi-urban community. The students assume various community roles in an attempt to solve the labor crisis. Community cooperation is emphasized but special interests and major value differences complicate the problem.

Game:	CULTURE CONTACT II (1976)
Source:	Games Central
Subject:	Cultural conflicts in trade
Grade level:	Junior-senior high school
Playing time:	2–4 hours
No. of participants:	20–30
Cost:	$35.00

This role-playing simulation brings out misunderstandings and cultural conflicts when a trading expedition calls at an island inhabited by a preindustrial society.

Game:	DANGEROUS PARALLELS
Source:	Scott, Foresman and Company
Subject:	International relations
Grade level:	Senior high school
Playing time:	Six 40-minute sessions
No. of participants:	18–36
Cost:	$66.00

DANGEROUS PARALLELS presents a model of a real-world situation in which a conflict threatens the peace of many nations. Students take roles of top-level decision-makers, walking through the closed doors of national conference rooms and into the secret sessions of international negotiations. Throughout, they are required to gather facts, weigh values, analyze problems, and make decisions.

Game:	DEVELOPING NATION
Source:	American Universities Field Staff

Subject:	Economic development
Grade level:	Senior high school-college
Playing time:	Up to one class period per group of players
No. of participants:	2–4
Cost:	$5.00

Participants role-play leaders in the developing nations of Southeast Asia. A board is provided. Players move along the board, experiencing events which negatively or positively affect their progress toward developed nation status.

Game:	DIG
Source:	Interact
Subject:	Economic development
Grade level:	Junior-senior high school
Playing time:	1–4 hours
No. of participants:	10–20
Cost:	$14.00

The class is divided into two competing teams, which are given the task of secretly creating two cultures. Each team first writes a description of its hypothetical civilization. This description stresses the interrelationships of cultural patterns: economics, government, family, language, religion, and recreation. After designing and then constructing artifacts which reflect their civilization's cultural patterns, team members carefully place these artifacts in the ground, according to the archeological principles learned during the simulation. Then each team scientifically excavates, restores, analyzes, and reconstructs the other team's artifacts and culture.

Game:	ECON/GNP (also available as Huntington I Simulation Programs)
Source:	Digital Equipment Corporation
Subject:	U.S. economy
Grade level:	Junior-senior high school
Playing time:	1–2 hours
No. of participants:	2–10
Cost:	$3.00

This computer-assisted game simulates the U.S. economy. Decisions are made which affect the productive capacity of the country.

Game:	ECONOMIC SYSTEM
Source:	Bobbs-Merrill Educational Publishing
Subject:	Competitive economic system
Grade level:	Junior-senior high school
Playing time:	2–6 hours
No. of participants:	7–13
Cost:	$33.33

ECONOMIC SYSTEM is based on the interrelationships of a competitive economic system. Mine owners, manufacturers, workers, and farmers produce, market, and consume goods while trying to make a profit and maintain a high standard of living. The game attempts to provide a graphic illustration of concepts relating to the operation of economic systems, including the dependence of each part of the system on the activities of other parts; ways in which group demands can cause the individuals to modify their behavior; and how participants can use their power to see to it that their own interests play a role in any group demands and collective goals that may be formulated. Participants can also learn about the problems of international trade, the problems of taxation, and the provision of public goods.

Game:	THE ECONOMY GAME
Source:	EMI
Subject:	U.S. economy
Grade level:	Junior high school-college
Playing time:	2 hours plus
No. of participants:	2-6
Cost.	$5.50

The game simulates the interactions of management and labor and the effects of these interactions on the economy. The game includes the factors of further training, saving, investment, production, selling, raising cash, repayment of debts, sale of holdings, the stock exchange, and government. Players compete to accumulate the largest total assets within the agreed-upon time limit.

Game:	ED PLAN
Source:	Games Central
Subject:	Educational planning, costs and benefits
Grade level:	Senior high school
Playing time:	2-4 hours
No. of participants:	29-36
Cost:	$30.00

EDPLAN is an educational system planning game designed to demonstrate the major issues of educational planning and to encourage awareness of alternative plans, costs and benefits.

Game:	ENTERPRISE
Source:	Interact
Subject:	Free enterprise
Grade level:	Junior-senior high school
Playing time:	2-4 hours
No. of participants:	20-30
Cost:	$14.00

This role-play simulation places the participants into positions as

bankers, businesspeople, brokers, consumers, welfare poor, politicians, and lobbyists. These groups interact with one another, buying and selling labor; buying and selling capital; and generally engaging in all the economic activities capitalism requires in order to function.

Game:	ESSO SERVICE STATION GAME
Source:	CRAC
Subject:	Competition in the market
Grade level:	Senior high school-college
Playing time:	Open—up to ten 1-hour sessions
No. of participants:	30
Cost:	£16.20 (plus 75 pence postage)

The ESSO SERVICE STATION GAME allots each team a service station with varying facilities. The teams then compete with each other for a greater market share of gasoline sales, car servicing, and sales of tires, batteries, and accessories.

Game:	ESSO STUDENTS BUSINESS GAME
Source:	CRAC
Subject:	Financing
Grade level:	Senior high school-college
Playing time:	Open—up to ten 1-hour sessions
No. of participants:	30
Cost:	£16.20 (plus 75 pence postage)

The players in this game experience the complexities of financing a company which manufactures and markets refrigeration equipment. Decisions must be made about finance, production, and marketing.

Game:	EXCHANGE
Source:	EDU-GAME
Subject:	Stock market
Grade level:	Junior-senior high school
Playing time:	5 hours
No. of participants:	30
Cost:	$2.00

EXCHANGE is a very basic simulation of the stock market. Students form stock clubs and buy stocks. At some predetermined time the stocks are sold and gains and losses are assessed.

Game:	EXCHANGE
Source:	Interact
Subject:	Stock market
Grade level:	Junior-senior high school
Playing time:	4–5 hours
No. of participants:	20–36
Cost:	$10.00

EXCHANGE is a simulation of the American stock market. Students assume roles as individual investors, foundation directors, mutual fund managers, brokerage firm executives, and exchange personnel. Three days of trading provide exciting possibilities for profit as investment strategies are tried out and reformulated by participants. The simulation ends with a discussion of why students would or would not invest their own funds in the stock market.

Game:	FIRM
Source:	Didactic Systems, Inc.
Subject:	Business management
Grade level:	Senior high school-college
Playing time:	2–4 hours
No. of participants:	Teams of 6
Cost:	$13.30 for 30 participants plus $3.85 for teacher's guide

The purpose of this exercise is to teach the economic principles of running a firm, and the fundamental relationships between assets, liabilities, revenue, cost; profits, and net worth. Teams represent store owners and participants represent the president, operation manager, buyer, controller, assistant controller, and public accountant. They must decide at what price to sell merchandise, whether to take on additional loans, and what to do with profits.

Game:	F.L.I.P.
Source:	Instructional Simulations, Inc.
Subject:	Consumer education, economics
Grade level:	Junior, senior high school-college
Playing time:	5 hours
No. of participants:	2–30
Cost:	$45.00

A one or two-person simulation and didactic unit treating the factors of budgeting, life-style, credit management, payment schedules, investment programs, purchase options, and income management. Twelve simulated periods, of one year, are conducted. Twenty different families are available as didactic units, each illustrating the role of family size, income, education, occupation, residence, and related socioeconomic variables as determinants of family life/income patterns.

Game:	GAME OF BRINKMANSHIP
Source:	History Simulations
Subject:	International relations
Grade level:	Junior-senior high school
Playing time:	3–5 hours
No. of participants:	20–45
Cost:	$8.50

This simulation involves two superpowers, the United States of America and the Union of Soviet Socialist Republics, attempting to reach agreements over real-life disagreements (crises from 1945 to 1967). Background information is analyzed and negotiation takes place between the two countries.

Game:	GHETTO
Source:	Bobbs-Merrill Educational Publishing
Subject:	Community, economics, civics
Grade level:	Junior-senior high school
Playing time:	1–3 hours
No. of participants:	7–10
Cost:	$37.33

GHETTO deals with the pressures under which the urban poor live and the choices that face them as they seek to improve their life situation. Each participant is given a fictional personal profile. They allocate their time among several alternatives: work, play, school, hustling (crime), passing time, and neighborhood improvement. Participants learn, among other things, how neighborhood conditions affect them individually and how conditions can be improved.

Game:	GUNS AND BUTTER
Source:	Simile II
Subject:	International economics
Grade level:	Junior-senior high school
Playing time:	1 to 1½ hours
No. of participants:	18–28
Cost:	$30.00

Participants serve as leaders of nations who try to increase the real wealth of their country and at the same time make sure that it is secure from attack by other nations. Participants can form common markets, trade, establish alliances, defend themselves, and attack other nations.

Game:	IMPACT
Source:	Instructional Simulations, Inc.
Subject:	Community action, opportunity costs
Grade level:	Junior, senior high school-college
Playing time:	6–10 hours
No. of participants:	20–35
Cost:	$160.00

IMPACT is a community simulation involving participants as community members. Each participant is supplied with biographical information, memberships in various groups, and differential involvement in selected key community issues based on newspaper analysis. Group problems are provided which require group members to process and resolve various alternative questions, predicaments, changes and maintenance problems.

Game: IMPORT
Source: Simile II
Subject: International trade
Grade level: Elementary-junior high school
Playing time: 10–20 forty-minute sessions
No. of participants: 18–35
Cost: $10

IMPORT is a simulation of the activities of six importing firms located in various ports around the world. Each firm, made up of approximately six participants, buys exports from various countries. Those firms which are able to buy products which can be sold for a profit in their own country are declared the winners.

Game: INDIAN RESERVATION
Source: EMI
Subject: Reservation economics and survival
Grade level: Secondary through adult
Playing time: 3–6 hours
No. of participants: 12–36
Cost: $12.00

Participants become members of one of four Indian families living on Indian reservations of the northern plains. They experience the problems encountered by Indians as they seek education and employment and deal with tribal politics. Each family must provide a subsistence payment to make sure that all members of the family are fed and clothed.

Game: INDIAN VALLEY
Source: American Forest Institute
Subject: Environmental management
Grade level: Elementary and high school
Playing time: 2–4 hours
No. of participants: 18–30 plus
Cost: Free

The objective of this game is to give students an opportunity to put into practice some of the principles professional forest land managers employ. Students divide into six teams. Five represent different interest groups. The sixth is a multiple-use committee that merges the uses of the valley into one plan. Interest groups include: (1) water resources, (2) parks and recreation resources, (3) timber resources, (4) fish and game resources, and (5) fire protection.

Game: THE INDUSTRIALIZATION GAME
Source: History Games Co.
Subject: Factors necessary for industrial development
Grade level: High school (grades 9–12)

Playing time: 1-2 hours
No. of participants: 6-40
Cost: $15.50

This is a board game in which students, in teams of 3 or 4 players each, compete with other teams in trying to develop most effectively the agricultural and industrial potential of their area. Tokens and option cards represent economic potential which can be utilized; cards for each round bring in uncontrollable factors such as weather and world market. Students who recognize the importance of infrastructure to economic development receive the highest scores. Students play the game twice, the second time using tokens and cards representing regions with few or abundant natural resources. This teaches the importance of natural resources for economic development. The game is roughly based on the resources available in three different regions in Brazil.

Game: INFLATION
Source: Paul S. Amidon & Associates, Inc.
Subject: Inflation
Grade level: Senior high school
Playing time: 1 hour
No. of participants: 33
Cost: $23.00

A role-playing activity which allows participants to take part in simulated aspects of the complex process of political-economic decision-making. Representing five major groups in the United States, participants attempt to influence the federal government to gain economic advantages as the government works to control inflation.

Game: THE INNER-CITY HOUSING GAME
Source: Found in Nesbitt (1971)—see Bibliographies in Chapter 5, below.
Subject: Inner-city housing
Grade level: Junior-senior high school
Playing time: 2-1/2 to 4 hours
No. of participants: 6-10
Cost: $4.95

This simulation provides participants with a role-play experience involving inner-city housing problems. The participants must find a place to live which is personally satisfactory and within certain budgetary limits. Typical housing problems are experienced and handled by each participant.

Game: INTERNATIONAL TRADE
Source: Didactic Systems, Inc.
Subject: Commerce, foreign trade

Grade level:	Senior high school
Playing time:	2–5 hours
No. of participants:	Teams of 6
Cost:	$13.30 for 30 participants plus $3.85 for teacher's guide

Participants play the roles of competitive importers, exporters, traders, and bankers. They must decide what to produce, how much to produce, and what to import. The objective is to gain profits from trade and to increase general welfare.

Game:	INVEST
Source:	Changing Times Education Service
Subject:	Personal investing
Grade level:	Senior high school
Playing time:	3–4 hours
No. of participants:	5-an entire class
Cost:	$8.95

INVEST is designed as an introductory activity to the study of saving and investing. It is not intended to teach specific information about the various kinds of personal investment. Rather, it is intended to be played as a motivating activity and to introduce various generalizations, principles, and terms relating to saving and investing. Students take the roles of investors, bankers, and brokers. Winners are determined by net worth and total assets at the end of the game.

Game:	ISLAND
Source:	Friendship Press
Subject:	Economic development
Grade level:	Junior-senior high school
Playing time:	1–3 hours
No. of participants:	13–24
Cost:	$10.00

The simulation involves government, banks, mining companies, resorts, and the original inhabitants of a Caribbean island. Players participate in the buying, selling, developing, and exploiting of land resources on the island.

Game:	KORUPSI
Source:	American Universities Field Staff
Subject:	Government regulation of business
Grade level:	Senior high school-college
Playing time:	Up to 1 class period per group of players
No. of participants:	3 or more
Cost:	$5.00

Participants role-play a taxi driver, street vendor, or restaurant owner. The objective is to obtain a license from government authorities.

Corruption—*korupsi* is the Indonesian word—usually becomes an important part of acquiring this permit to do business. Play is on a board which provides critical incidents in the pursuit of the applicant's objective.

Game:	LAND GRAB
Source:	EMI
Subject:	Land development
Grade level:	Secondary-adult
Playing time:	2 hours plus
No. of participants:	2–4
Cost:	$12.00

Each participant represents a corporation with a limited sum of money. The objective is to use and invest the money carefully so as to produce sufficient returns to expand operations. The participants compete for land and building opportunities. The player who builds the largest buildings and eventually constructs the Sports Stadium is the winner.

Game:	THE LAND USE GAME
Source:	Cardinal Printers, Inc.
Subject:	Land development
Grade level:	Junior-senior high school
Playing time:	1–2 hours
No. of participants:	Open
Cost:	$4.00

This game presents the interrelationships and conflicts between humankind and the natural environment. The participants must decide where to locate roads, recreation areas, forests, etc., for the purpose of meeting human needs and protecting the natural environment.

Game:	LIMITED, COMPETITIVE MARKET
Source:	South-Western Publishing Co., Inc.
Subject:	Competition and price determination
Grade level:	Junior-senior high school
Playing time:	1 hour
No. of participants:	Up to 42
Cost:	Part of a set of five economic simulations (see footnote to COMPETITION OR CONTROL?); $50.00 per set. A teacher's guide accompanies the set.

This game introduces the economic concepts of retail buying and selling where buyers purchase items in a given price range for resale on the retail market. Participants learn how competition affects price determination. In this game, buyers from numerous large retail outlets are sent to Mexico to buy items in a given price range that might appeal

to retail customers. Participants learn about the flexibility of price determination in a market where handmade items are purchased for resale. The item marketed is a Mexican poncho.

Game:	LIMITED MARKET
Source:	South-Western Publishing Co., Inc.
Subject:	Supply and demand
Grade level:	Junior-senior high school
Playing time:	1 hour
No. of participants:	Up to 42
Cost:	Part of a set of five economic simulations (see footnote to COMPETITION OR CONTROL?); $50.00 per set. A teacher's guide accompanies the set.

This game is designed as a learning resource to be used in the study of free-market economic relations. The unit stresses aggregate intergroup economic actions, rather than micro features.

Game:	THE MANOR GAME
Source:	History Games Co.
Subject:	The economic functioning of a manor in medieval Europe
Grade level:	Grades 9–12
Playing time:	1–2 hours
No. of participants:	10–40
Cost:	$3.50

This is a game in which students play roles either as lord or as members of one of four peasant families which make up a manor. Manors compete to see which is the most viable. Students representing peasants make decisions concerning planting crops, while the lord collects a percentage in feudal obligations. Factors such as drought intervene to increase or decrease the yield in grain; these factors represent things that often happened during the medieval period. Students learn that the lord and peasant were mutually dependent on one another, and that factors which were beyond their control determined to a considerable extent the manor's prosperity.

Game:	MARKET
Source:	Didactic Systems, Inc.
Subject:	Economics, supply and demand
Grade level:	Senior high school
Playing time:	2–5 hours
No. of participants:	Teams of 6
Cost:	13.30 for 30 participants plus teacher's guide for $3.85

The purpose of this game is to demonstrate how price is established

through changing demand and supply conditions. It also illustrates the concept of diminishing returns. Participants represent buyers and must make budgeting decisions on what to consume, given a fixed budget. They must decide on quantities of goods to buy, what prices to pay for the goods, and how much money they should save. Their objective is to gain satisfaction points through purchasing goods at various prices.

Game:	MARKET
Source:	Digital Equipment Corporation
Subject:	Market
Grade level:	Elementary-junior, senior high school
Playing time:	One-half to 2 hours
No. of participants:	2–10
Cost:	Individual packet, $3.00; classroom packet, $23

This computer-assisted game allows participants to engage in company decision-making. Two companies compete in single product competition. Price, inventory, and advertising decisions must be made.

Game:	MARKET PLACE
Source:	Changing Times Education Service
Subject:	Market alternatives-consumer choices
Grade level:	Junior-senior high school
Playing time:	Game is part of total unit. Time depends on amount of material used.
No. of participants:	30
Cost:	$8.95

This game is part of a unit which allows participants to make market decisions in order to maximize utility from purchases. The participants use advertising warranties and general product information for background knowledge before purchases are made.

Game:	MARKETPLACE
Source:	Joint Council on Economic Education
Subject:	Economics, economic systems
Grade level:	Senior high school-college
Playing time:	6–12 hrs
No. of participants:	20–
Cost:	$75

MARKETPLACE is a game which translates basic economic concepts participants read about in an introductory text into a series of transactions which simulate a microeconomic world. The economic concepts that are demonstrated by events in the game are supply, demand, dilemma of limited wants and unlimited resources, factors of production, circular flow of capital and goods, the functions of money, the influence of the profit motive, division of labor, and the market. The essence of the game is to provide participants with a systems approach

to economics. This conceptual framework should then help the players to make appropriate economic judgments. Teams of participants role-play households and businesses: manufacturers, retailers, or banks. Through a process of buying and selling, participants acquire units of satisfaction. The team which acquires the most units of satisfaction by the end of the game is the winner.

Game:	THE MARKET SIMULATION GAME—ECONOMIC MAN
Source:	Benefic Press
Subject:	Economics
Grade level:	Elementary-junior high school
Playing time:	1-3 hours
No. of participants:	16-40
Cost:	Game is included as part of curriculum package $66.00

The game attempts to help participants to discover the economic concepts of market, profit, and supply and demand. The entire class is divided into two groups—consumers and retailers. Within the groups, participants are paired to form teams and compete against each other. Retailers must buy food from a wholesaler, rent stores, and establish their own selling prices. They must attempt to maximize their profits. Consumers must attempt to buy food with limited funds. Points are given for the better choices and use of the funds. The consumer team with the most points wins the game.

Game:	MERCHANT
Source:	Interact
Subject:	Free market
Grade level:	Junior-senior high school
Playing time:	14-15 hours
No. of participants:	35
Cost:	$22.00

Students are paired as owners of sixteen competing general stores located in four different Western communities at the turn of the century. Since their community is emerging from the nineteenth century, they must change their businesses from simple general stores to shops that meet the ever-growing needs and demands of their consumers.

Game:	THE METAL BOX BUSINESS GAME
Source:	CRAC
Subject:	Business management
Grade level:	Senior high school and college
Playing time:	5-7 hours
No. of participants:	6-24
Cost:	£14.50 plus value added tax

THE METAL BOX BUSINESS GAME has been designed to give high school students and trainee managers an understanding of the purpose of business and of the work of the business manager. The player must put himself or herself in the position of the manager who must solve financial, production, and marketing problems, while securing satisfactory returns from the resources entrusted to him or her.

Game:	MONOPOLY
Source:	Parker Brothers Games
Subject:	Investment
Grade level:	Elementary, junior-senior high school
Playing time:	1–3 hours
No. of participants:	2–8
Cost:	$6.66

Participants buy, sell, and swap real estate, railroads and utilities. Monopoly positions allow for higher rents to be charged other participants.

Game:	MULBERRY
Source:	Paul S. Amidon & Associates, Inc.
Subject:	Urban renewal
Grade level:	Junior-senior high school
Playing time:	2–4 hours
No. of participants:	20–35
Cost:	$57.50

This is a simulation of an urban renewal project in one community. Participants play the roles of citizens, city officials, and professional planners. The objective is to combine use of federal resources in planning a government structure to redevelop an area of sixteen blocks in Mulberry, an older section of Greenbriar City. Participants must deal with problems of urban renewal involving high-density population, poor quality housing, and poor social environment.

Game:	THE NAME OF THE GAME
Source:	P.A.C.T.
Subject:	Poverty
Grade level:	Senior high school and adult
Playing time:	1 to 1½ hours
No. of participants:	18–30
Cost:	$1.65

The purpose of the game is to show the dynamics of poverty in the midst of affluence and rewarded competition. Players are assigned the roles of citizen, storekeepers, police officer, welfare worker, clergy, etc. At the beginning of the game money is unequally distributed. Citizens must use their money to purchase supplies from the stores for use in making two collages. At the end of the game the best collage receives a prize.

Game:	NATIONAL ECONOMY
Source:	Didactic Systems, Inc.
Subject:	Economics, national economy
Grade level:	Senior high school
Playing time:	2–5 hours
No. of participants:	Teams of 6
Cost:	$13.30 for 30 participants plus teacher's guide $3.85

The purpose of the game is to aid understanding of the relationships between growth, inflation, national income, and unemployment. It also shows how activity in different kinds of industries can have different effects on the economy. A model is developed simulating a nation's economic atmosphere and conditions. Participants role-play representatives of the business community on an economic policy committee, separated into three industrial groups producing consumer, luxury, and producer goods. They must decide on the yearly level of investment in each of these sectors. Their objectives are to maintain full employment without inflation and to promote orderly growth of the economy.

Game:	NEW CITY TELEPHONE COMPANY SIMULATION GAME
Source:	Bell Telephone's local education representative
Subject:	Decision-making; natural monopoly
Grade level:	Junior-senior high school
Playing time:	Open; approximately 3–4 hours
No. of participants:	Open
Cost:	Free by special arrangement with local Bell Telephone Company representative

Participants, working in five-member teams, manage the New City Telephone Company. Each team must specify company goals and then solve four different management problems. The team's score reflects how effective the players were in meeting company goals. In reviewing the results of the game, participants will want to discuss the role of public utilities in the U.S. economic system, labor-management relations, the effects of inflation on workers and businesses, work attitudes, career choice.

Game:	NEW TOWN
Source:	Harwell Associates
Subject:	Community planning
Grade level:	Junior, senior high school-college
Playing time:	Three-fourths to 3 hours
No. of participants:	10–20
Cost:	$18.00 for 10 participants, $32.00 for 20 participants

NEW TOWN is a game of strategy involving the environmental,

economic, social, and political factors in building a brand-new community. Participants bid on land, vote for public buildings, participate in open discussions, and make compromises which affect every player.

Game:	NO DAM ACTION
Source:	Instructional Simulations, Inc.
Subject:	Resource management
Grade level:	Junior, senior high school-college
Playing time:	6–20 hours
No. of participants:	20–40
Cost:	$115.00

Water resource management is the theme of NO DAM ACTION; its title was taken from a newspaper heading dealing with alternatives to flood control measures. Together with flood control, the simulation also covers problems of water resource plans, sanitation and water treatment needs, pollution abatement, lake and water use classification, plus a nuclear power plant.

Game:	THE NOMAD GAME
Source:	History Games Co.
Subject:	The importance of natural resources and movable property in nomadic life
Grade level:	Grades 9–12
Playing time:	45 minutes to 1 hour
No. of participants:	8–40
Cost:	$3.00

In this game students are divided into four teams representing four different tribes. The players try to increase their tribe's prosperity by careful utilization of a scarce natural resource (water), and by allying or competing with one another to try to increase their movable property (camels). An introduction to the game acquaints students with the importance of these things to nomadic life.

Game:	PACIFIC EXPRESS
Source:	Berkeley Gaming Project
Subject:	United States railroad development
Grade level:	Senior high school-college
Playing time:	5–10 hours
No. of participants:	9–31
Cost:	$20.00

This game recapitulates the building of the transcontinental railroad from 1860 onward. It demonstrates how the railroad ventures were organized and financed.

Game:	PANIC
Source:	Interact

Subject: American history, economics
Grade level: Junior-senior high school
Playing time: 23 hours
No. of participants: 25–36
Cost: $14.00

PANIC divides the class into economic pressure groups from different regions of the United States during the period 1920–40. Students study the prosperity of the 1920s and the depression of the 1930s. The simulation culminates in mock congressional committees and a mock Congress trying to solve the economic crisis.

Game: PILGRIMAGE
Source: American Universities Field Staff
Subject: Comparative economic systems
Grade level: Senior high school-college
Playing time: One class period per group of players
No. of participants: 4 teams of 1, 2 or 3 players
Cost: $5.00

Participants role-play villagers of various ethnic groups seeking to become pilgrims to Mecca, the holy city of Islam. A board is provided which symbolically dispenses good or bad luck as players move around it. When sufficient points and/or money are earned, a player achieves the desired experience: a pilgrimage to Mecca.

Game: PINK PEBBLES
Source: Cardinal Printers, Inc.
Subject: Money
Grade level: Elementary
Playing time: One-half to 1 hour
No. of participants: 2–6 (board version), 36 (classroom version)
Cost: $8.00 for board version, $9.95 for classroom version

Participants of PINK PEBBLES begin as rudimentary farmers trying to attain subsistence through settled farming. Progressing through seven levels of activity, they gain time to start handicrafts, to accumulate surpluses, to barter, and finally to specialize as owners of "stores" in an evolving market economy. Along the way, they find "pink pebbles"—meaningless at first but increasingly important as the need grows for a medium of exchange.

Game: THE PLANET MANAGEMENT GAME
Source: Houghton Mifflin Company
Subject: Community planning
Grade level: Junior-senior high school
Playing time: 1–2 hours

No. of participants: 4–6
Cost: $18.99

THE PLANET MANAGEMENT GAME puts participants in control of an imaginary planet with a population explosion and a pollution problem. A "cardboard computer" aids decision-making.

Game: POLLUTION GAME
Source: Games Central
Subject: Costs of pollution and abatement programs
Grade level: Junior-senior high school
Playing time: 1–3 hours
No. of participants: 12–16
Cost: $30.00

The game presents community consequences of different forms of pollution—air, water, noise—and of abatement programs. Participants role-play residents, businesspeople, industrialists, etc., in the community, which is mapped out on a game board. Participants are faced with the dilemma of high short-term costs for abatement programs as compared to disastrous long-term effects of unabated pollution.

Game: POLLUTION GAME
Source: Houghton Mifflin Company
Subject: Ecology
Grade level: Junior-senior high school
Playing time: 1–2 hours
No. of participants: 4–6
Cost: $14.97

The POLLUTION GAME involves participants in today's ecological crises. As they try to improve environmental quality, the profit motive complicates their efforts.

Game: POTLATCH GAME
Source: Games Central
Subject: Resource allocation; conspicuous consumption
Grade level: Junior-senior high school
Playing time: The game is part of a larger unit—time is dependent on materials used
No. of participants: 30
Cost: $65.00

The game recreates a ceremony common to the Pacific Northwest's Kwakiutl Indians. The ceremony sees the host (participant) trying to gain prestige by overwhelming his guests with "gifts."

Game: POWDERHORN
Source: Simile II
Subject: Political economics

Grade level:	Elementary
Playing time:	1–2 hours
No. of participants:	18–35
Cost:	$15.00

POWDERHORN is an adaptation of the secondary simulation STAR-POWER. In POWDERHORN participants take the part of frontierpeople who establish a three-tiered society by trading rifles, traps, and pelts. After a time, the participants in the highest level are given the right to make the rules for the society. They usually make rules which enable them to stay in power. This undemocratic behavior almost always leads to a revolution of one kind or another, at which time the game is ended.

Game:	PRESSURE
Source:	Interact
Subject:	Community development-urban economics
Grade level:	Junior-senior high school
Playing time:	2–4 hours
No. of participants:	6–36
Cost:	$14.00

Participants become citizens in a community beset by the big problems facing local government today: zoning vs. personal rights; cultural and ecological preservation vs. economic gain; and school modernization in plant and curriculum vs. tradition and taxpayers. Participants become involved in these crisis situations by forming six pressure groups found in almost all communities: a Taxpayers' Association, a Chamber of Commerce, a Developers' Association, a Farmers' Cooperative, an Ecology Club, and an Historical Society. Some participants are elected to a Community Council (simulating a city or town council or county board of supervisors), and a School Board. Others are appointed to a Planning Commission, a Zoning Board, and a Water-Sewer Authority.

Game:	THE PRODUCTION PROGRAMME: THE BRADFORD GAME
Source:	CRAC
Subject:	Production
Grade level:	Senior high school-college
Playing time:	1 to 1½ hours
No. of participants:	20–40
Cost:	£10.00 plus value added tax

The purpose of the BRADFORD GAME is to give an understanding of the excitement, complexity, and challenge of production management while reducing the technological content of manufacturing to a minimum. Each group is required to organize the manufacture of a range of simple products, orders for which are received from a marketing department.

Game:	PROFIT, a Simulation of Modern Trading in Southeast Asia
Source:	American Universities Field Staff
Subject:	International trade; imports, exports
Grade level:	Senior high school-college
Playing time:	One class period minimum. Can be extended with increasing sophistication among traders to five class periods
No. of participants:	20 or more
Cost:	$7.50

Participants role-play ministers of trade of seven Southeast Asian nations, trading agents from seven industrialized nations, and six service agents, such as bankers, who facilitate transactions.

Game:	PROTECTION
Source:	Interact
Subject:	Government regulation
Grade level:	Junior-senior high school
Playing time:	4–5 hours
No. of participants:	Class
Cost:	$10.00

The simulation addresses itself to consumer protection and has students learn how "administrative law" is made by a government agency. In small groups, the students consider the idea of a trade-off between protection and cost. Groups are assigned roles as the general consumer, labor, investors, dealers, advertisers, or manufacturers. Each group presents its position on a protection problem. The Agency then rules. Each group has the right of appeal. A postgame review session analyzes both the content of consumer protection and the process of administrative law.

Game:	THE REDWOOD CONTROVERSY
Source:	Houghton Mifflin Company
Subject:	Resource allocation
Grade level:	Junior-senior high school
Playing time:	1–2 hours
No. of participants:	4–6
Cost:	$11.97

THE REDWOOD CONTROVERSY has participants debate proposals for a redwood national park. The ecological and financial aspects of conservation efforts are brought out.

Game:	RIP-OFF
Source:	EMI
Subject:	Consumer fraud

Grade level: Intermediate to adult
Playing time: One-half to 1 hour
No. of participants: 2–8
Cost: $5.25

RIP-OFF is a card game designed to help identify the appeals advertisers use to get consumers to buy their products. If the players can identify the appeal they do not have to buy the product. The idea is to earn money but not to spend it. Money can be earned by getting rid of unwanted products, naming appeals, or by doing odd jobs.

Game: ROARING CAMP
Source: EMI
Subject: The Old West
Grade level: Grades 4–8
Playing time: 5–7 hours
No. of participants: 18–35
Cost: $10.00

Students become prospectors in the Old West. Some strike it rich, others end up broke. Participants must deal with claims disputes which are settled by a "hanging judge." The game serves as an excellent introduction to the Gold Rush era.

Game: SCARCITY AND ALLOCATION
Source: Didactic Systems, Inc.
Subject: Economics
Grade level: Senior high school
Playing time: 2–5 hours
No. of participants: Teams of 6
Cost: $13.30 for 30 participants plus $3.85 for teacher's guide

The objective is to increase the standard of living of a group of people stranded on an island. Savings are measured in hours, which, although they cannot be saved, can be spent for projects that lift the castaways above the survival level. Participants must make decisions on how to allocate time among hunting, fishing, farming, food-collecting, and tool-making. The game attempts to highlight the meaning of saving and investment and the relationships between these two economic activities.

Game: SETTLE OR STRIKE
Source: Games Central
Subject: Collective bargaining
Grade level: Junior, senior high school-college
Playing time: Open
No. of participants: 24–32
Cost: $45.00

This game is a role-play simulation of the collective bargaining process. Role teams represent union local and Lastik Plastic Co., as they try to reach agreement on five contract issues: wages, union security, seniority, vacations, and contract duration.

Game:	SHARE THE RISK
Source:	Changing Times Education Service
Subject:	Insurance
Grade level:	Junior-senior high school
Playing time:	Game is part of a total unit. Time depends on amount of material used.
No. of participants:	30
Cost:	$8.95

The game stresses the concepts of decision-making, risk-sharing, and chance-taking as they relate to the insurance area. The insurance types included are life, health, property, and liability.

Game:	SHELTER
Source:	Paul S. Amidon & Associates, Inc.
Subject:	Housing
Grade level:	Senior high school
Playing time:	1 hour
No. of participants:	12–15
Cost:	$36.00

Players choose roles and then make choices of shelter based on financial conditions and personal tastes. The game is played with the use of computers. Players are made aware of the need for carefully selecting adequate housing to fit within their budget.

Game:	SIMSOC
Source:	The Free Press
Subject:	A simulated society
Grade level:	High school and up
Playing time:	5 plus hours
No. of participants:	20 plus
Cost:	$5.95 per participant

Students simulate a society. SIMSOC focuses on the central problem of the establishment and maintenance of social order. The game attempts to create a situation in which the student must actively question the nature of the social order and examine the processes of social conflict and social control. As an inevitable by-product, participants find themselves dealing with a host of issues, including interpersonal trust, leadership, "deviant" behavior, social protest, and power relations.

Game: THE SOCIAL MOBILITY GAME
Source: History Games Co.
Subject: Factors stimulating trade and social mobility in early modern Europe
Grade level: Grades 9–12
Playing time: 45 minutes to 1 hour
No. of participants: 6–40
Cost: $10.50

Playing in teams of three to four players each, students compete with other teams to see which can more effectively increase social mobility. Students do this by choosing the decision from decision cards which will lead to greater trade and less dependence on the feudal system. The consequence cards tell students the results of their choices and instruct them to advance their token peasants to laborers, merchants, etc. Two chance cards, "war" and "plague", show that consequences are not entirely predictable. Students make decisions based on the historical situation that existed in early modern Europe.

Game: SPIRAL
Source: Interact
Subject: Inflation
Grade level: Junior-senior high school
Playing time: 5–6 hours
No. of participants: Class
Cost: $10.00

SPIRAL is a simulation of our struggle to control inflation. Students role-play labor leaders, government employees, businessmen, farmers, bankers, investors, and consumers. Students complete a research assignment which they contribute to their interest group presentation at an inflation conference. The President draws up a proposal which he/she presents to Congress. Students sitting as Congress debate and decide whether to accept, modify, or reject the President's plan. The simulation ends with a review session on inflation principles in a worldwide economy.

Game: STARPOWER
Source: Simile II
Subject: Distribution of wealth
Grade level: Junior-senior high school
Playing time: 1–2 hours
No. of participants: 18–35
Cost: $25.00 for kit for 18–35 participants

This game involves students in the operation of a low-mobility three-tiered society built upon the distribution of wealth in the form of chips. Participants have a chance to progress from one level of society to another by acquiring wealth through trade with each other. Once the

society is established, the group with the most wealth is given the right to make the rules of the game. The purpose of the game is to serve as a device for raising questions about the uses of power in a competitive society.

Game:	THE STOCK MARKET GAME
Source:	State University College at Buffalo
Subject:	Portfolio management
Grade level:	High school-college
Playing time:	3 months
No. of participants:	Large numbers
Cost:	$4.00 per stock market game kit

The game allows students to "trade" on the New York Stock Exchange using imaginary funds in competition with other teams. The game involves a hypothetical $100,000 which can be invested in a portfolio of stocks. Students are responsible for managing an investment portfolio over a ten-week period. Transactions are analyzed weekly by the college computer center. At the conclusion of each competition the State University College at Buffalo acts as host at a stock market awards banquet. THE STOCK MARKET GAME was first developed at the Wilfrid Laurier University, Waterloo, Ontario.

Game:	STOCKMARKET GAME
Source:	EMI
Subject:	Security investments
Grade level:	Junior-senior high school
Playing time:	2 hours
No. of participants:	1–6
Cost:	$10.00

This game attempts to reveal how the stockmarket works and what causes prices to rise and fall. Participants act as stockmarket investors who buy and sell securities in an attempt to accumulate the greatest net worth.

Game:	STRIKE
Source:	Interact
Subject:	American history, economics, collective bargaining
Grade level:	Junior-senior high school
Playing time:	20 hours
No. of participants:	20–40
Cost:	$14.00

STRIKE simulates a late nineteenth century environment with two towns; one having a steel mill, the other a coal mine. Participants play roles with conflicting goals: owners, managers, workers, and unemployed. Horatio Alger effort and chance can help participants become

economically successful. The situation is stimulated by two kinds of bulletins: historical bulletins which make workers aware of labor's plight throughout the United States and fate bulletins which kill or injure. Eventually, Phase I culminates in either a strike, a lockout, or fumbling attempts at collective bargaining. During Phase II, participants realize how much labor-management relations have changed when they participate in collective bargaining sessions on a contemporary case study.

Game:	SURVIVAL
Source:	Florida Council on Economic Education
Subject:	Economic systems
Grade level:	Junior-senior high school
Playing time:	2 hours
No. of participants:	An entire class
Cost	Unknown

The game is a flexible simulation designed to introduce students to the economic concepts of scarcity, economic resources, basic economic questions, different economic systems, economic interdependence, and specialization. Students have been lost on an arctic island with little hope of rescue. Their objective is survival. In order to survive they must produce one unit each of clothing, shelter, and food per person. Since there is a shortage of resources, students must eventually organize and cooperate to insure survival.

Game:	SWINDLE!
Source:	Changing Times Education Service
Subject:	Consumer education
Grade level:	Senior high school
Playing time:	2-3 hours
No. of participants:	20+
Cost:	$8.95

The purpose of the game is to help students experience decision-making in shopping and to teach them to recognize and avoid deception and frauds. Most players are buyers. Each buyer must buy a used car from one of two car dealers and have the car repaired by one of two repairers. Buyers may also purchase products at the Bargain Mart, and they may invest in money-making opportunities. The highest scores go to buyers who avoid frauds and spend their money wisely.

Game:	TAXES
Source:	Interact
Subject:	Taxes
Grade level:	Junior-senior high school
Playing time:	4-6 hours
No. of participants:	Class
Cost:	$10.00

TAXES is a simulation of how major taxes affect individual and community decisions. Students assume a variety of occupational roles and in the course of the simulation develop a "taxation profile" that shows how the various taxes affect their lives. The climax of the simulation is Community Council's enactment of a tax proposal.

Game:	TERRITORY
Source:	American Universities Field Staff
Subject:	Natural resources
Grade level:	Senior high school-college
Playing time:	One class period minimum. Can be extended with increasing sophistication over several days
No. of participants:	4 individuals or teams
Cost:	$5.00

Participants role-play outside powers competitively seeking territories in Southeast Asia. Play is on a map of the region which is provided. Following acquisition of a territory, its resources are identified and may be developed.

Game:	TIGHTROPE
Source:	El Paso Public Schools
Subject:	Monetary and fiscal policy
Grade level:	Senior high school
Playing time:	1-3 hours
No. of participants:	Minimum of 3
Cost:	Negotiated with developer

TIGHTROPE is a simulation representing various historical periods of economic activity. The role of participants is to act as economic advisers to maintain economic stability and growth. They must make policy decisions dealing with periods of depression, recession, uncontrolled inflation, moderate inflation and moderate unemployment, or conditions of stability and reasonable growth.

Game:	TRACTS
Source:	Instructional Simulations, Inc.
Subject:	Community development
Grade level:	Junior-senior high school
Playing time:	2-4 hours
No. of participants:	14-40
Cost:	$45.00

This simulation illustrates problems of deciding what to do with scarce land in the core city. Participants form into teams and role-play four sectors or interests competing for influence in an urban land development situation. The interest groups include private land developers, public housing authorities, industry, and a city planning commission. The teams must make decisions on resource allocation and development policy. The purpose of the simulation is to illustrate to

participants the opportunities, arguments, and actions of various community sectors when land cannot serve equally the interest of all parties without compromise and negotiation.

Game:	TRADE
Source:	Interact
Subject:	International trade
Grade level:	Junior-senior high school
Playing time:	4–6 hours
No. of participants:	Class
Cost:	$14.00

TRADE is a simulation of the pressures and procedures of international commerce. It directly involves students in exchanging goods and in dealing in currency that together form the basis of international trade. All simulated nations must interact with each other to maintain the precarious balance of trade that symbolizes our modern world. Students, using research to aid their decision-making, try to survive as a nation without resorting to war.

Game:	TRADE OFF: THE LAND USE PLANNING GAME
Source:	Joint Council on Economic Education
Subject:	Land use
Grade level:	Senior high school-college-adult
Playing time:	3 hours
No. of participants:	9–19
Cost:	$25.00

The simulation focuses on community development and land use planning. Game participants learn to deal with environmental, economic, social, and political concepts and the trade-offs involved in the development of a community.

Game:	TRADING POST
Source:	Innovative Media Enterprises, Inc.
Subject:	Supply and demand
Grade level:	Junior-senior high school and above
Playing time:	1–4 hours
No. of participants:	10–40
Cost:	$5.50

TRADING POST is an economic simulation. It may be used for one period as a brief supply and demand exercise, or up to five periods, allowing the students to employ more sophisticated strategies of buyer and seller. The setting is eighteenth-century North America, where it is easier to isolate the elements of supply and demand. Five competing Pioneer groups and five Merchant groups bargain with each other to exchange resources for the best price they can. The overall winner will be the group who has accumulated the most profit.

Game: TRANSIT
Source: Instructional Simulations, Inc.
Subject: Transportation
Grade level: Junior, senior high school-college
Playing time: 4–10 hours
No. of participants: 20–40
Cost: $45.00 plus shipping

TRANSIT provides data and background information for simulated public sectors planners, and local officials to deal with problems of transportation. Mass transit, freeway development, parking, safety standards, and others are problems dealt with in this simulation.

Game: TRANSPORTATION GAME
Source: Games Central
Subject: Travel costs comparison by mode
Grade level: Elementary and remedial
Playing time: 1-3 hours
No. of participants: 8–34
Cost: $24.00

The game involves participants in planning, arranging, and "taking" trips via different modes of passenger transportation. Participants are presented with specific transportation problems for which arrangements must be made with other students who act as agents for different travel modes—car, bus, railroad, or airplane.

Game: TRIANGLE TRADE
Source: EMI
Subject: History, economics
Grade level: Junior-senior high school
Playing time: 1–3 hours
No. of participants: 15–44
Cost: $16.00

This is a historical simulation that explores the slave trade, the economic structure of the New England colonies, and the mercantile philosophy of Great Britain during the seventeenth century. The purpose of the exercise is to help participants learn why the New England colonies did not fit into the British mercantile system; why the British government opposed the triangle trade route; and what was the relationship of the British mercantile system to the economic development of New England. Participants assume the roles of the major historical parties in the triangular trade route of the seventeenth century.

Game: ULCERS
Source: EMI
Subject: Human capital

Grade level:	Intermediate to adult
Playing time:	1 to 1½ hours
No. of participants:	2–6
Cost:	$10.75

ULCERS is a big-business game that focuses on people. Each participant begins with $50,000 and a company. The objective is to get a full staff of personnel for the company before the other players do.

Game:	URBAN DYNAMICS
Source:	Urbex Affiliates, Inc.
Subject:	Community development-urban economics
Grade level:	College
Playing time:	2–4 hours
No. of participants:	12–20
Cost:	$95.00

URBAN DYNAMICS illustrates the basic structures and processes of the real city, simplified sufficiently for participants to conceptualize interlocking urban systems. A game session provides an overview of a city, including all of the following factors: political organization, welfare, zoning and land use, urban-surburban interaction, taxation, unemployment, social and racial stratification, economic growth, transportation, population growth, residential patterns, and education. Options: model cities, health, pollution, megalopolis and media.

Developing on a game board, URBAN DYNAMICS progresses by ten-year periods from the recent past into the future. Four teams of participants relate to each other as representatives of the socioeconomic groups found in modern cities. Since the teams are assigned resources and restraints, their decisions and actions arise from a spontaneous reaction to the game situation rather than from an "acting out" of assigned roles. The teams may either compete or cooperate as they deal with all the aspects of city life noted above, and they also have the opportunity to come together in City Council meetings to make decisions affecting the entire city.

Game:	W.A.L.R.U.S.
Source:	Urbex Affiliates, Inc.
Subject:	Community planning-resource use
Grade level:	Junior-senior high school
Playing time:	2–4 hours
No. of participants:	5–25
Cost:	$75 plus postage

The Water and Land Resources Use Simulation (W.A.L.R.U.S.) is designed to focus on the impact of public and private decisions on water pollution. W.A.L.R.U.S. is played by five teams, each of which is free to invest in any of the five land uses provided in the game.

Different water requirements and sewage generation factors are assigned to the different land uses. Land uses considered in the model include heavy and light industry, recreation, simple and advanced farming, retail stores, and residential developments of varying density. In addition, municipally owned land uses include water and sewage treatment plants, municipal service buildings, schools, and parks.

Game:	WELFARE WEEK
Source:	EMI
Subject:	Welfare
Grade level:	Senior high school-college
Playing time:	Two 2 hour sessions
No. of participants:	6-600
Cost:	$50

Participants simulate living on a welfare budget. They must go through intake, are given a caseworker, and are assigned a budgetary allotment. Periodic crises force the players to make crucial financial decisions.

Game:	WHEELS
Source:	Paul S. Amidon & Associates, Inc.
Subject:	Personal economics
Grade level:	Senior high school
Playing time:	2-4 hours
No. of participants:	3-35
Cost:	$46.00

This computer-based simulation is designed to provide students with experience in purchasing and maintaining a car successfully for one year. The experience includes purchase of car, selection of method of financing, choice of insurance, and provision for running expenses. The computer randomly assigns accidents, major repairs, and unexpected events and calculates running expense.

Game:	WHERE DO WE LIVE?
Source:	Scott, Foresman and Company
Subject:	Community planning
Grade level:	Elementary
Playing time:	1-4 hours
No. of participants:	30
Cost:	$24.00

Participants create a natural environment which they then develop. Communities and cities are planned for the purpose of meeting human needs without harming the quality of the environment.

Game:	WHERE DO YOU DRAW THE LINE?
Source:	Simile II

Subject:	Ethics
Grade level:	Senior high school
Playing time:	1 hour
No. of participants:	25
Cost:	$19.50

Five groups of participants make ethical judgments about the behavior of people described in a variety of situations. In addition to indicating their own opinion, each group also indicates how it believes most businesspeople and most members of the general public would respond to the same situations. The culminating discussion is directed toward discovering the assumptions which were used by the groups to make their judgments. The implications of those assumptions are discussed.

Game:	WILDLIFE
Source:	Berkeley Gaming Project
Subject:	Ecological balance
Grade level:	Junior-senior high school
Playing time:	2 plus hours
No. of participants:	2-6
Cost:	$20.00

A working model of an ecological system which simulates the actual Isle Royale moose-beaver-wolf environment. Habitat quality is established by markers on a chess-type board which represents the rules developed in accord with the natural life cycles of the species involved. The functioning of the natural cycles becomes apparent after only a few "years," phases of play that take twenty minutes to one-half hour. The game demonstrates predator-prey relationships, the problems of overgrazing, consequences of population explosions, the concept of carrying capacity, and migration pressures.

Game:	WORK EXPERIENCE PROJECTS
Source:	CRAC
Subject:	Work experience simulations
Grade level:	Junior-senior high school
Playing time:	1/2 to 1 hour
No. of participants:	30
Cost:	£31.32

The CRAC WORK EXPERIENCE PROJECTS enable teachers to set up realistic work situations in the classroom. Students participate in simulated problem-solving exercises which are similar to the kinds of problem-solving situations encountered on the job. There are six titles in the project: (1) Transport Clerk, (2) Receptionist, (3) Printer's Reader/Proofreader, (4) Sales Promoter, (5) Police Officer, and (6) Bank Cashier.

Game:	YOU'RE THE BANKER (formerly MR. BANKER)
Source:	Federal Reserve Bank of Minneapolis
Subject:	Commercial banking and Federal Reserve policy
Grade level:	Junior-senior high school
Playing time:	4 forty minute sessions
No. of participants:	6-30
Cost:	$15

This simulation acquaints participants with the money and credit system of our nation and how it affects and is affected by changes in economic conditions. Its major objective is the deposit-money creation function of commercial banks and the need for a central monetary authority--the Federal Reserve System—to change the rate of growth of the money supply and the cost and availability of credit.

5

Bibliographies, Journals, and Publishers of Educational Games and Simulations

In this chapter we present other bibliographies that describe games and simulations for use in social studies or related curricula; a list of journals and newsletters concerning games and simulations; and the addresses—as of early 1979—for publishers of games and simulations. This material may assist teachers interested in staying current on new developments in games and simulations as well as being useful to teachers wishing to order specific games.

Bibliographies

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Horn, Robert E., ed., *The Guide to Simulations/Games for Education and Training*, 3rd ed. Cranford, NJ: Didactic Systems, Inc., 1977, 567+ pages, $29.00.

Klietsch, Ronald G., *Involvement Learning Digest.* Minneapolis: Learning Systems, Inc., 1973. Order from Ross & Haines, Inc., 11 East Lake Street, Minneapolis, MN 55408. Yearly subscriptions, $18.75.

Livingston, Samuel A., and Clarice Stasz Stoll, *Simulation Games.* New York: Free Press, 1973, 43 pages, $4.95.

Nesbitt, William A., *Simulation Games for the Social Studies Classroom*, 2nd ed. New York: Foreign Policy Association, 1971, 144 pages, $2.50.

Stadskley, Ron, *Handbook of Simulation Gaming in Social Education, Part 2: Directory*. Birmingham: Institute of Higher Education Research Services, University of Alabama, 1974, 347 pages.

Steinwachs, Barbara, *A Selected List of Urban, Environmental and Social Problem Gaming/Simulations*. ERIC document ED 135 667, January 1977, 27 pages. Order from Social Science Education Consortium, Inc., Boulder, CO 80302

Journals and Newsletters

Journal of Experiential Learning and Simulation. Elsevier North-Holland Inc., 52 Vanderbilt Avenue, New York, NY 10017 (3 issues yearly, $17.50).

SAGA Journal (Simulation and Gaming Association). R. R. 2, Greentree Road, Lebanon, OH 45036 (4 issues yearly, $5.00).

Simulation and Games: An International Journal of Theory, Design and Research. Sage Publications, 275 South Beverly Drive, Beverly Hills, CA 90212 (4 issues yearly, $20.00).

Names and Addresses of Distributors and Publishers

American Forest Institute, 1619 Massachusetts Avenue N.W., Washington, DC 20036.

American Universities Field Staff, The Wheelock House, P.O. Box 150, Hanover, NH 03755.

Paul S. Amidon & Associates, Inc., 1966 Benson Avenue, St. Paul, MN 55116.

Benefic Press, 10300 W. Roosevelt Road, Westchester, IL 60153.

Berkeley Gaming Project, Institute of Urban and Regional Development, University of California-Berkeley, Berkeley, CA 94720.

Bobbs-Merrill Educational Publishing, 4300 West 62nd Street, Indianapolis, IN 46206.

Canadian Foundation for Economic Education, 115 University Avenue, Suite 301, Toronto, Ontario, Canada M5H3B7.

Cardinal Printers, Inc., Wesleyan University, Middletown, CT 06457.

Changing Times Education Service, 1729 H Street, N.W., Washington, DC 20006.

Classroom Dynamics, 231 O'Connor Drive, San Jose, CA 95128.

Community Service Volunteers, 237 Pentonville Rd., London, N19NS England.

Cooperative Extension Service, Bulletin Department, Washington State University, Pullman, WA 99164.

CRAC Publications, Hobsons Press (Cambridge) Ltd., Bateman Street, Cambridge CB2 1LZ, England.

Curriculum Development Associates, Inc., Suite 414, 1211 Connecticut Avenue, N.W., Washington, DC 20036.

Didactic Systems, Inc., Box 457, Cranford, NJ 07016.

Digital Equipment Corporation, 146 Main Street, Maynard, MA 01754.

EDU-GAME, P.O. Box 1144, Sun Valley, CA 91352.

El Paso Public Schools, Purchasing Agent, Box 1710, El Paso, CA 79999.

EMI: Education Manpower, Inc., Box 4272, Madison, WI 53711.

Federal Reserve Bank of Minneapolis, 250 Marquette Avenue, Minneapolis, MN 55480.

Florida Council on Economic Education, P.O. Box 4641, Clearwater, FL 33518.

The Free Press, A Division of Macmillan Publishing Co., Inc., 866 Third Avenue, New York, NY 10022.

Friendship Press, 475 Riverside Drive, Room 772, New York, NY 10027.

Games Central, Abt Publications, 55 Wheeler Street, Cambridge, MA 01238.

Harcourt Brace Jovanovich, 757 Third Avenue, New York, NY 10017.

Harwell Associates, P.O. Box 95, Convent Station, NJ 07961.

History Games Co., 5178 S. Harmony Road, Bloomington, IN 47401.

History Simulations, P.O. Box 2775, Santa Clara, CA 95051.

Houghton Mifflin Company, 110 Tremont Street, Boston, MA 02107.

Innovative Media Enterprises, Inc., P.O. Box 2424, Postal Station B, St. Catharines, Ontario, Canada L2M 7M8.

Instructional Simulations, Inc., 2147 University Avenue, St. Paul, MN 55114.

Interact, P.O. Box 262, Lakeside, CA 02940.

Joint Council on Economic Education, 1212 Avenue of the Americas, New York, NY 10036.

P.A.C.T., Wayne County Community College, Community Services/Continuing Education, 4612 Woodward Avenue, Detroit, MI 48201.

Parker Brothers Games, Salem, MA 01970.

Prentice-Hall, Inc., Englewood Cliffs, NJ 07632.

Psychology Today Games, P.O. Box 700, Del Mar, CA 92014.

Scott, Foresman and Company, 1900 East Lake Avenue, Glenview, IL 60025.

Simile II, 218 Twelfth Street, P.O. Box 910, Del Mar, CA 92014.

Simulation Sharing Service, 4740 Shadowood Drive, Jackson, MS 39211.

Simulation System Program, Black Butte Ranch, OR 97759.

South-Western Publishing Co., Inc., 355 Conde Street, West Chicago, IL 60185.

State University College at Buffalo, Center for Economic Education, 1300 Elmwood Avenue, Buffalo, NY 14222.

Study-Craft Educational Products, R1 683, Tusson Research Center, Belle Chasse, LA 70037.

Urbex Affiliates, Inc., P.O. Box 2198, Ann Arbor, MI 48106.