

Developments in Business Simulation & Experiential Exercises, Volume 15, 1988

OVERVIEW OF THE ABSEL GUIDE TO EXPERIENTIAL LEARNING AND SIMULATION LEARNING

James W. Gentry, University of Nebraska-Lincoln

Last year at the conference in Hilton Head the ABSEL Board voted to support the creation of the ABSEL Guide to Experiential Learning and Simulation. The chapters to be included in the Guide are abstracted on the following pages; the entire chapters will be available from the authors at the Guide sessions at this conference. The primary reason for the incorporation of the chapters into the conference is to provide the authors an opportunity to obtain feedback from the membership as a whole before preparing a final draft.

The purposes of the Guide itself are numerous. It is intended to provide instructors with insight as to the variety of approaches available, and as to the problems and benefits associated with them. Several chapters also attempt to provide insight as to future changes in pedagogies stressing experiential learning. Finally, several chapters will discuss the evaluation of various experientially-based pedagogies: the problems to be considered in developing a research design, the results of previous studies, and issues still needing much research.

Many of the chapters are extensions of previous ABSEL papers. Besides being intended to provide a very solid research volume which can serve to promote experiential learning and to help prevent more reinvention of the wheel, the Guide is also intended to promote our organization. Much of the work presented at this and at previous ABSEL conferences is at the forefront of the gaming and experiential learning areas. Those without access to our Proceedings are largely unaware of many of these efforts. Hopefully, the Guide will create greater awareness of our organization as well as provide a solid base for further development of the area.

Time restrictions will prevent the presentation of each chapter. Instead we will have four panel sessions which will integrate topics across chapters. The tentative panels are as follows:

THE FIRST GAME USE: PITFALLS TO BE AVOIDED

William Biggs, Beaver College
Richard V. Cotter, University of Nevada-Reno
Anthony J. Faria, University of Windsor
David Fritzsche, University of Portland
Bernard Keys, Georgia Southern College

WHAT GAMES WILL LOOK LIKE IN THE YEAR 1995

Newell Chiesl, Indiana State University
Stephen Gold, Rochester Institute of Technology
Alan Patz, University of Southern California
Thomas Pray, Rochester Institute of Technology
Richard Teach, Georgia Tech

WHAT EXPERIENTIAL EXERCISES WILL LOOK LIKE IN THE YEAR 1995

Theodore Alex, Wayne State University
Alvin C. Burns, University of Central Florida
Hugh Cannon, Wayne State University
Lee Graf, Illinois State University
Calvin Kellogg, University of Mississippi
Bruce McAfee, Old Dominion University
James Schreier, Far Cliffs Consulting

WHAT SHOULD BE THE DEPENDENT VARIABLE IN STUDIES EVALUATING EXPERIENTIAL LEARNING: PERFORMANCE, LEARNING, OR ATTITUDE?

Alvin C. Burns, University of Central Florida
James W. Gentry, University of Nebraska-Lincoln
Jerry Gosenpud, University of Wisconsin-Whitewater
Joseph Wolfe, University of Tulsa

Please attend and participate in the panel discussions. Do not forget to ask the Guide authors to share their chapters with you.

Chapter 1

WHAT IS EXPERIENTIAL LEARNING?

James W. Gentry, University of Nebraska

ABSTRACT

Despite the fact that this is the 15th conference for the Association of Business Simulation and Experiential Learning, there remains uncertainty as to the exact domain of experiential learning. An AACSB

Task Force (Carter et. al 1986, p.3) defined applied experiential learning as: "A business curriculum related endeavor which is interactive (other than between teacher and pupil) and is characterized by variability and uncertainty."

That can be contrasted with the definition proposed by Hoover (1974) at the first ABSEL conference but later modified at the second conference (Hoover and Whitehead 1975, p.25): "Experiential learning exists when a personally responsible participant cognitively, affectively, and behaviorally processes knowledge, skills, and/or attitudes in a learning situation characterized by a high level of active involvement."

This chapter will not attempt to develop the definition of experiential learning, but rather will attempt to use the definitions presented above and the work of various other authors (Gentry 1981; Goosen 1981; Sugges 1981; Ward 1981; Wolfe and Byrne 1975) to specify the critical components to experiential learning.

CRITICAL COMPONENTS TO EXPERIENTIAL LEARNING

Applied In Nature. The AACSB Task Force stated that experiences will not qualify as applied experiential learning without having the expected educational outcomes articulated and related to the curriculum.

Participative. The student must be involved in the process. Experiential learning is active rather than passive.

Interactive. As specified by the Task Force, the interaction involves more than just the instructor/student dyad. Student/student, student/client, or student/environment interaction is also required.

Whole-Person Emphasis. Experiential learning can involve learning on the behavioral and affective

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dimensions as well as the cognitive dimension.

Contact With The Environment. The term “experience” implies a real world contact; the emphasis is thus one of trying to provide as realistic an environment for learning as possible.

Variability And Uncertainty. One of the benefits for experiential learning cited by the AACSB Task Force is that students get a feel for the “messiness” and ambiguity associated with real world situations. Structure. The experience has to be structured and monitored to insure that it is a “quality” experience. If there is no guidance provided, the experience may be largely meaningless.

Feedback By Students About The Experience. Even though the instructor is monitoring the experience, the important perceptions of what is happening resides within the student. Accordingly these perceptions must be understood and articulated by the student.

Feedback By The Instructor. We do not always learn well from experience. The instructor must provide process feedback in addition to the outcome feedback built into the experience itself.

Given that the components of experiential learning are specified above, it may be possible to dichotomize pedagogies as involving experiential learning or as not. An earlier attempt (Gentry 1981) to do so in the ABSEL Newsletter was criticized (Goosen 1981) for being somewhat narrow in its scope. Perhaps a superior approach to dichotomization is the one taken by the AACSB Task Force, which essentially presented a continuum of pedagogies. Hopefully the criterion discussed above can be used to bring more accord to whether a specific pedagogy involves experiential learning or not.

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Chapter 2

Introduction to Business Gaming

William D. Biggs, Beaver College

The purpose of this abstract is to provide an overview of the “Introduction to Business Gaming” chapter which will appear in the ABSEL Guide to Experiential Learning and Simulation Gaming. The chapter is a revision of an earlier article, “Computerized Business Management Simulations for Tyros,” which appeared in the 1986 Association for Business Simulation and Experiential Learning Proceedings, Developments in Business Simulation & Experiential Exercises (Burns and Kelly, eds.).

The chapter will provide background information on the growth of business games and on terminology related to business games. Particular emphasis will be placed on the ways business games are classified such as general management versus functional, competitive, interactive, industry or non-industry specific, individual or group focus, deterministic or stochastic, mainframe or micro-computer oriented, and game complexity.

Next, the chapter will deal with issues surrounding selecting a simulation for use. The issues to be discussed include setting objectives, locating and obtaining the simulations, evaluating the simulation, costs, etc.

Finally, the chapter will cover issues related to using the simulation. Issues to be covered include modifying the simulation support activities for the simulation, when should the simulation be introduced into the course, team versus individual play, and the grading of performance.

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Chapter 3

BUSINESS FIRM USAGE

BUSINESS SIMULATION GAMES AFTER THIRTY YEARS: CURRENT USAGE LEVELS

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ABSTRACT

The research reported here represents a major attempt to estimate the total number of business simulation users. The final estimates developed are based on over 1,700 mail questionnaires supplemented by telephone contacts and a thorough literature review. The findings show that there is a large, and growing, number of business school instructor and business firm users of simulation games.

BACKGROUND

Business games date back to 1955 with the development of *Monopologs* by the Rand Corporation as an Air Force logistics simulation. After a period of slow growth, the number and variety of business games expanded rapidly. Today, there are at least 228 business simulation games published and available for anyone's use. No past research, however, has ever identified the number of business game users.

DATA GATHERING

In order to estimate the current usage level of business simulation games among both academics and business firms, a mail survey, supplemented by telephone contacts and a thorough literature review, was undertaken. The audience for the mail survey included: (1) Deans and directors of business schools or departments; (2) business school faculty; (3) business firm training and development managers; and (4) consulting firms that supply simulation games to industry for management training programs.

BUSINESS SCHOOL USAGE

Business games have been in use for classroom teaching since 1957 when the University of Washington became the first university user. A mailing to the Deans or directors of one-third of all business schools in the U.S. showed that 86.1 percent of the responding schools are currently using business games somewhere in their program. This projects to approximately 1,733 business schools using simulation games.

The usage level of business games is highest in the policy course followed, in order, by marketing, finance, management, and accounting. Business games are currently being used in 3,813 separate courses at the 1,733 using schools.

A second mailing went to a sample of business school instructors. The results of this mailing indicated that 16.9 percent of the respondents are current simulation users. Applying this percentage to the 50,607 business school instructors in the U.S. results in an estimate of 8,553 current business instructor users.

Mailings were sent to a sample of corporate training and development managers as well as all known consulting firms that supply business games to business firms for their training programs. Of the responding training and development managers, 54.7 percent indicated that their firms use simulation exercises in their training programs. Projecting this percentage to the 8,027 businesses that are known to employ training and development managers results in an estimate of 4,391 using business firms.

The consulting firms surveyed have an average of 178 clients whom they supply with simulation exercises. Multiplying this by the 33 known supplying firms results in a total of 5,872 clients. Assuming that some firms serve the same clients, this number is reasonably close to the projection derived from the survey of training and development managers.

CONCLUSIONS

There are currently at least 228 business games in use at 1,733 colleges by 8,553 faculty members in 3,813 different courses. In addition, simulation games are being used by 4,000 to 5,000 business firms in their training programs. The survey results indicate that these numbers have been growing in recent years and are expected to grow further over the next five years.

Chapter 4

Business Game Availability

Bernard Keys, Georgia Southern College William D. Biggs, Beaver College

The purpose of the abstract is to provide an overview of the "Business Game Availability" chapter which will appear in the *ABSEL Guide to Experiential Learning and Simulation Gaming*. The chapter combines, modifies and updates earlier articles by Biggs (1987) and Keys (1987) in the June 1987 issue of *Simulation and Games*.

The chapter provides reviews of 10 total enterprise games which are typically used in the business policy course. The total enterprise games are described, compared, contrasted, and evaluated in terms of the environments of the games and the types of decisions required in the functional areas of accounting/finance, marketing, production/operations and personnel/human resources. The chapter also provides reviews of 10 functional business games - 4 in marketing; 3 in accounting/finance; 2 in production/operations; and, 1 in personnel/ human resources. The functional business games are described, compared, contrasted, and evaluated in each of the functional areas in terms of the decisions required. Finally, the games are discussed in the context of a learning model.

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Chapter 5

GUIDELINES FOR USING BUSINESS CANES

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ABSTRACT

The paper begins with a discussion of factors to consider when one is selecting business games. They include the types of games available, the number and complexity of the decision variables, computer requirements of the game, and decision support provided.

The three major parts of the paper deal with introducing the game, ongoing competition and ending the gaming experience. The introduction of the game section begins with suggestions for reducing start-up shock when introducing the game to the participants. Then the importance of an operating plan is discussed. Next team organization, both self selected and instructor selected, is addressed along with recommendations for team size. The advantages and disadvantages of centralized vs. direct data entry are treated with some prejudice toward direct entry. Alternative methods of distributing game output are dealt with in the context of the simulations capabilities and the needs of the students. Finally, the activities leading up to the first run of a game are discussed.

Decision timing begins the discussion of the ongoing competition section. This, of course, depends to some extent on how the game is being run. The use and role of stimulators which are external and/or incorporated into the simulation program is treated next. Decision support systems are also addressed as more games are being packaged with some type of decision support system included.

A simulation experience may be terminated by notifying the participants that the game will end with a specific decision or they may be told that the game has ended following the last run of the simulation. The merits of both methods are discussed. Then the difficult task of evaluating the performance of the individual teams is dealt with. The authors support a combination of qualitative and quantitative criteria. The paper ends with a discussion of the use of team presentations and a debriefing session to terminate the game experience.

Chapter 6

Simulation Game Design Issues

Richard Teach, Georgia Institute of Technology

Chapter 7

MODELING DEMAND IN COMPUTERIZED- BUSINESS SIMULATIONS

by
Steven C. Gold
Thomas F. Pray

ABSTRACT

This chapter deals with the design and development of demand functions used in computerized business simulations which are competitive and interactive in nature. It is particularly important for a business simulation, which is modeled to reflect the "real world" to embody algorithms which are consistent with economic, managerial, and financial theory.

The chapter begins by highlighting the properties of modern demand theory that are most useful to modeling demand functions. A review of the types of functions utilized by simulation designers is presented. The properties of these functions are discussed and the strengths and weaknesses identified. Taking account of these concerns, a robust demand system, composed of ten equations, is presented. The recommended demand system is shown to be stable and embodies the following key elements: a multiplicative industry and firm demand functions with variable elasticities, increasing and decreasing returns to the independent variables, exponential smoothing to incorporate intertemporal considerations, and a current period stock-out reallocation scheme with statistical checks on faculty decision inputs.

The chapter concludes with three numerical examples, demonstrating the use and flexibility of the system. The examples illustrate how the parameters of the system can be derived by specifying the desired elasticities and inflection points; and how the system handles excessive stockouts.

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Chapter 8

INTERACTIVE REAL-TIME SIMULATION

Newell Edward Chiesl, Indiana State University

ABSTRACT

Technological advances in Computer Hardware, file manipulation and software programming have all contributed to recent advanced in pedagogical based simulations. One such advance is the development of the interactive real-time simulation technique.

The chapter begins by presenting the differences between time fixed and flexible time simulation techniques. This is followed by examples of Discrete and Continuous system modeling. Interactive real-time simulation was defined as the simulation of an object system by participants who are interacting with both the computer and other participants in a real-time environment. To be realistic, the participants input their decisions and receive their outputs in a continuous system state. Lastly, the chapter illustrates the file manipulation technique and computer programming inherent to interactive real-time simulation.

Chapter 9

OPEN SYSTEM SIMULATION

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ABSTRACT

The basic idea in most simulation designs is to integrate business games and traditional coursework in some fashion that enhances the degree to which students learn or understand a particular set of general management concepts. These efforts almost always involve closed system or predetermined algorithms that do not change in essential detail as the simulation proceeds. However, this pedagogical intent can be extended to include a wide range of research topics by developing open system games. These systems will be based upon emerging computer routines including, among other conditions, (1) market algorithms that are not programmed in advance, (2) enhanced notions of what a simulation input is and how participants will manage them, (3) continuous rather than discrete processing, and (4) a high degree of administrator participation.

However the open system concept is operationalized, the important point is that they can be discussed in terms of current and developing technologies and realistic design efforts can begin. There is no reason to think of some distant future instead of the near term. Furthermore, open systems are a good example of where the often sought but seldom realized interdisciplinary research goal can be attained. For once, policy theorists have some common ground with decision and computer scientists. Policy, however, is not the only business field that can benefit from the design and use of open systems. The focus in this paper is on policy simulations, but the same arguments apply to most other areas of business research and practice as well as several areas of engineering and science. Open systems apply anywhere the phenomena of interest can be described as emergent. That is, the various states of the subject chosen for study cannot be predicted over time given knowledge of initial states or conditions.

In fact, it is probably fair to say that the prediction of subsequent states given a knowledge of initial ones is not the main research focus in open systems. Again, using the modifier emergent, interest is on the possibilities or alternative future states as some phenomenon, e.g., a policy simulation, develops over time. If prediction is a concurrent result of open system analyses, this is simply another research benefit. Nevertheless, the main focus is on behavioral possibilities rather than behavioral bounds or limits.

Research project examples that fit easily into the emergent phenomena category are noted including decision making patterns in planned and collaborative as well as competitive environments, management styles, group dynamics, and technological innovation. Routine experience and inspired research have shown that these sorts of complex behaviors escape ordinary closed system descriptions even with access to vast resources.

But, by simulating such environments in an open system, where behavior can emerge and vary over time, insights into actual decision making patterns can be achieved. First, an open system simulation allows the research to be done rapidly; and second, the participants can "behave" in an environment that develops over time rather than one constrained by artificialities dictated by the linear assumptions in experimental design models. Open systems, in short, permit an equal partnership between research and pedagogy in simulation development and use.

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Chapter 10

EXPERIENTIAL LEARNING EXERCISES: SOURCES AND SPECIFIC EXAMPLES

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ABSTRACT

This paper presents a brief summary of a chapter on experiential learning exercises to appear in the book, The ABSEL Guide to Experiential Learning and Simulation Gaming (James W. Gentry, Editor).

SUMMARY

The term, “exercise” means different things to different people. To some, an exercise and “touchy-feely” are synonymous; participants walk around, perhaps blindfolded, touching each other, presumably to gain a better understanding of themselves and others. To others, an exercise is synonymous with a role play; some participants assume the role of a supervisor while others assume the subordinate’s role. The only difference between role plays is the subject of the conversation held between participants. To still others, an exercise consists of small group discussions, the purpose of which is to make a decision. Exercises for these people differ only in terms of the nature of the decision to be made. The important point here is that most people have a relatively narrow view of what constitutes an exercise. They fail to realize the wide diversity of formats which make up the exercise domain.

The major purpose of this book chapter is to make readers aware of this diversity. In so doing, a number of specific examples are discussed. Hopefully, these examples will serve to encourage greater use of exercises and serve as a catalyst or starting point for the creation of new ones.

The specific examples described in the chapter are divided into six different categories. The first consists of specific company/job role plays. These exercises ask students to assume they work for a fictitious firm and hold a specific job such as Personnel Manager, Vice President of Production, or Sales Manager.

Students are then given tasks to perform and decisions to make which are similar to ones people in these positions would encounter. While many of these exercises are designed to build specific functional skills, others focus on developing more general abilities such as decision making and interpersonal relations skills.

A second category is decision making exercises. closely related to the previous group, these exercises require individuals or groups to make one or more decisions. Students do not role play; they simply make a decision or perform a task.

A third category of exercises involves having students debate various topics. These debates can range from those using the traditional two team format to more exotic ones such as those using four debating teams with no rebuttal.

Another exercise format consists of critique or evaluation exercises. In these, students are told that an organization or manager has taken one or more actions, and they are required to critique, usually in small groups, these actions. The student evaluations serve as the basis for class discussion. The last two categories of exercises described in the chapter are game shows and Assessment Centers. All of us are familiar with the game show format as seen on television. Interestingly, this format can and has served as the basis for exercises. An Assessment Center is a place in which one group of participants evaluates another group of participants on a selected group of dimensions. While Assessment centers are widely used in industry for evaluating the promotion potential of employees, they also can and have been used on college campuses as an experiential learning device.

In conclusion, this book chapter makes no attempt to describe an example of every type of experiential learning exercise pedagogy. Rather it presents examples of some of the formats being used, including some of the more unusual ones.

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Chapter 12

THE USE OF LIVE CASE STUDIES IN BUSINESS EDUCATION: PROS, CONS, AND GUIDELINES

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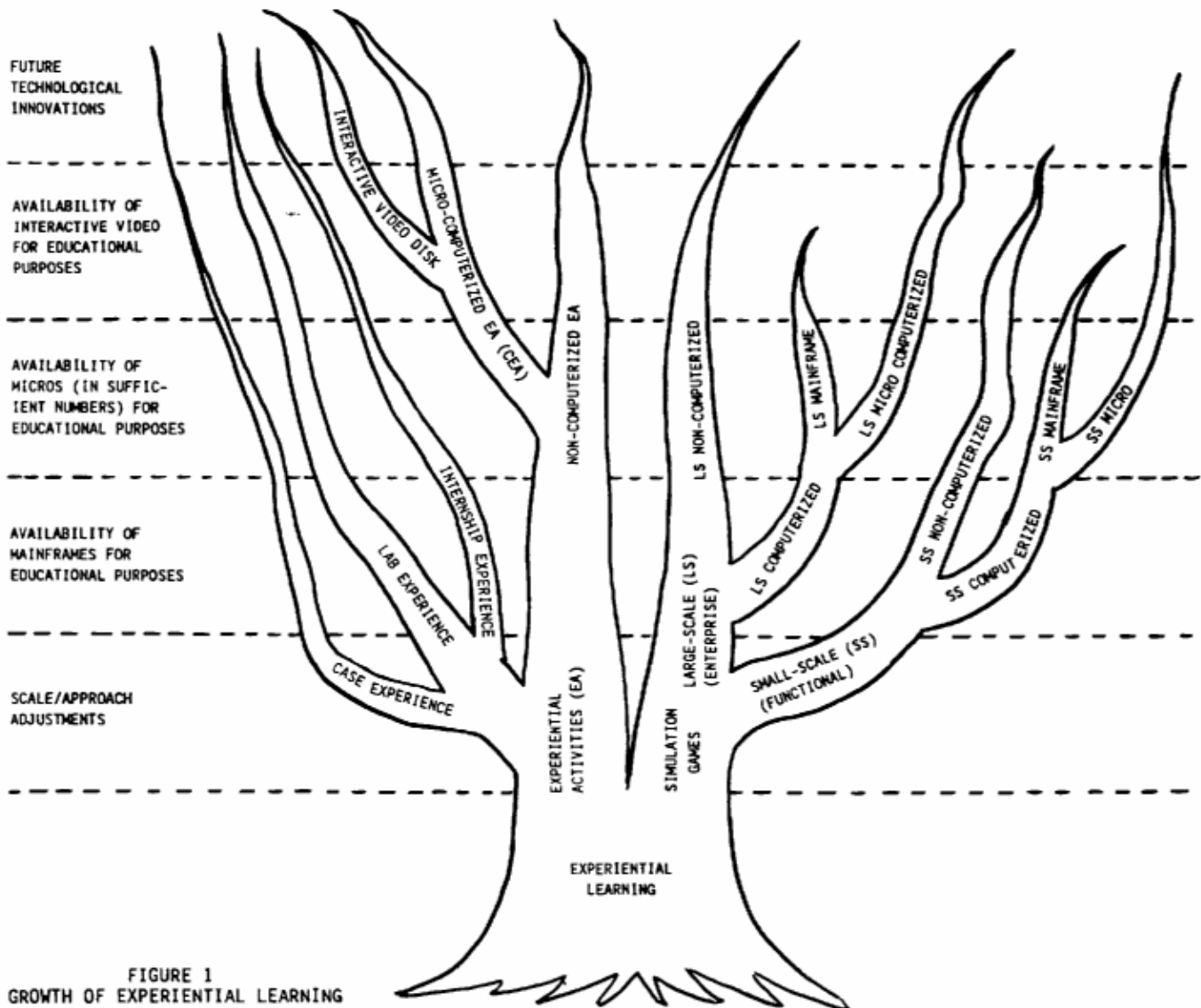
ABSTRACT

Based on a comprehensive literature review and personal reflection, the author specifies several guidelines for live case studies. A sampling follows:

1. Sponsors must guarantee willingness of key people to participate face-to-face with students.
2. There should be reasonable proximal location of the organization to the university.
3. Projects should illustrate the application of theory and practice as covered in class material.
4. Projects should be selected that could be completed in a reasonable amount of time.
5. Projects should be interesting and challenging to students in order to ensure an educational experience and not just cheap labor.
6. Sponsors must be willing to pay for the expenses incurred in conducting the project in a timely fashion.
7. Sponsors should be willing to ensure that cooperation, assistance, support, and, hence, time necessary to provide students the information they may require for the project.
8. Identify all tasks necessary to complete the project.
9. Identify the sequencing of these tasks, possibly with flow chart assistance.
10. Determine the approximate time frames of the tasks.
11. Develop a master schedule of the tasks, giving start and completion target dates.
12. Gain agreement from the sponsor and the student team as to the schedule.
13. Assign responsibilities (instructor, sponsor, student team, and individual student) to accomplish the tasks according to schedule.
14. The instructor should compare actual to targeted dates and act as a control agent if the schedule is not being honored.
15. Identify the amount and nature of work required for each live case project.
16. Adopt a mechanism which forms teams appropriate to the live case project tasks necessary to be performed (e.g., functional specialization, skill specializations, etc.)
17. Decide on a suggested ideal group size consistent with: (1) the amount of work to be performed and (2) the constraints of student population characteristics. A handy rule of thumb might be five-plus-or-minus two.
18. Require student groups to identify a (strong) group leader who will be the liaison for the group with the sponsor and the instructor.
19. Adopt an evaluation system which acknowledges the possibility of uneven contributions by individual team members and adjusts the individual student's grade based on peer evaluation of the effort contributed.
20. Gain written acknowledgement from sponsors that students' out-of-pocket expenses will be reimbursed in timely fashion.
21. Submit an estimated expenses budget to the client. Gain approval in the very early stages of the live case study.
22. Require students to maintain expenses records and retain expenses receipts. These should be submitted along with the final report.
23. Require students to maintain internal records of which students incurred which expenses. Identify a single student who will be responsible for final disbursement of expenses to team members.
24. Require sponsors to cut reimbursement checks immediately after receiving the expenses report so students will be reimbursed before they end the term and leave campus.
25. If desired, develop an account (e.g., a university foundation account) appropriate for donations from sponsors.
26. Develop an understanding with sponsors that the project is a student project which will have a professional appearance but is not to be considered in the category of professional consulting; its purpose is a learning experience.
27. With each project, identify specific dates as checkpoints when you will work with the student team. Make clear that you expect significant progress to be made between checkpoint dates.
28. Insofar as possible use other class members as resources. For instance, have student teams make interim report presentations in class and open their work up to constructive class criticism.
29. Consider the use of class time to meet with individual teams.
30. Include a minimum of one week slack time in the final report deadline at the end of the term.

EVOLUTION OF EXPERIENTIAL LEARNING APPROACHES AND FUTURE TRENDS

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INTRODUCTION

This chapter focuses on the evolution of experiential learning and trends which may influence the future of experiential learning. A variety of formats have evolved to fill specific experiential niches. Each format is examined and the similarities and differences are presented in Table 1. While all approaches to experiential learning remain viable, some appear to be entering stages which may result in major changes.

Change in experiential learning is not new. For example, the

authors suggest several major stages of development which have led to the current status of experiential learning (see Figure 1). These changes include the: (1) scale/approach adjustment phase, (2) mainframe computers for education phase, and (3) availability of micro-computer phase. The next major phase predicted is the micro-processor based interactive video phase. The potential impact of this technology on each type of experiential learning is examined and discussed. The authors encourage ABSEL members to provide their own projections, comments, and visions regarding the various approaches to experiential learning in the next decade.

TABLE 1
CHARACTERISTICS OF EXPERIENTIAL LEARNING FORMATS

Formats:	Iterations		Chained Decisions		Topic Specificity		Debriefing		Interactive Feedback		Competitive Environment		Skill Development		Group Size		Computerized	
	Single	Multiple	Non-Chained	Chained	Single	Multiple	Content	Process	Yes	No	Yes	No	Technical	Interpersonal	Individual	Group	Yes	No
SIMULATION		X	X			X	Yes	No		X	X		Yes	No		X		X
		X	X			X	?	No		X	X		Yes	No		X		X
		X	X				Yes	No		X	X		Yes	No		X		X
		X	X				Yes	No		X	X		Yes	No		X		X
GAME																		
EXPERIENTIAL	X				X		Yes	Yes		X		X	Yes	Yes	X	X		X
	X		X		X		Yes	No	X			X	Yes	No	X	X	X	
	X		X		X		Yes	Yes		X	X		Yes	Yes	X	X		X
	X		X			X	Yes	No		X	X		Yes	No	X	X		X
ACT	X		X		X		No	No		X			Yes	Yes	X			X

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Chapter 15

A CORNUCOPIA OF CONSIDERATIONS IN EVALUATING THE EFFECTIVENESS OF EXPERIENTIAL PEDAGOGIES

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Joseph Wolfe, University of Tulsa

Despite the fact that the use of experiential approaches in the classroom is often met with an enthusiastic reception from students, one must ultimately face the question of relative effectiveness. Not to be distracted by the natural excitement generated by experiential approaches, one must question whether these approaches actually facilitate learning. The need for such evaluation is multifold. First, there is a need to compare the efficacy of experiential to "traditional" approaches such as one-way delivery in the forms of lectures and assigned readings. On a different plane, there is a need to compare alternative experiential pedagogies competing to achieve the same learning end. Implicitly, we should be seeking to discover and adopt the "best" pedagogical climate for our students, for, in the absence of this concern, the educator is continually plagued with opportunity cost and efficient time use questions. Unfortunately, a paucity of solid empirical evidence exists regarding the relative effectiveness of experiential techniques.

Our intent is to offer a conceptual framework on which to build a research agenda designed to address the attendant methodological problems. To state our purposes more systematically, they are as follows:

1. To sensitize readers to some thorny issues involved in the evaluation of experiential pedagogies.
2. To discuss considerations encountered in the conceptualization and measurement of two criterion variables: learning and attitude.
3. To delineate variables potentially affecting the effectiveness of experiential pedagogies.
4. To indicate some ways to measure these variables.
5. To specify some possible relationships between the variables.

THE CRITERION VARIABLES: LEARNING AND ATTITUDE

We suggest that Learning is the critical dependent variable, although Gosenpud (this volume) suggests that Attitude is, and Wolfe (this volume) notes that Performance is frequently the operationalization used in simulation gaming studies. We argue that performance is not a correct operationalization of learning, especially given the philosophy that one learns from trial and effort. Instead, we advocate the use of Bloom's taxonomy (Bloom et al. 1956) to relate the objective of the exercise with the correct level of learning and, subsequently, with the manner in which learning is operationalized.

Like Gosenpud (this volume), we acknowledge that affect is also crucial to the establishment of a good learning environment. Further, attitude is a multidimensional construct as it may involve the course, the instructor, the experiential exercise, the student himself/herself, other

students, the subject matter, or even the education process.

TITLE INDEPENDENT VARIABLES

The chapter discusses in detail a large number of independent variables which are hypothesized to affect the success of various pedagogical approaches and which the investigator should try to manipulate, control, or measure in order to explain differential learning (across institutions, across courses, across sections, across instructors, across students, etc.) better. The general categories and the specific variables are listed below. The chapter later suggests ways to operationalize these variables, and then posits the nature of the relationships among them.

Concepts Covered in the Experiential: Complexity, Theoretical Nature, Functional/Environmental Scope, Precision, Stochasticism, Number.

Nature of the Experiential: Duration, Decision Variables, Intergroup Competition and Results Sharing, Participant Grouping, Course Integration, Potential for Modification, Degree of Realism.

Experiential Conduct: Accountability, Autonomy, Pace, Participant Involvement, Educator Involvement, Debriefing.

Student Attributes: Ability to Learn, Willingness to Learn, Ability to Learn, Willingness to Participate, Number, Demographic and Personality Characteristics.

Educator Considerations: Motive for Use, Teaching Philosophy, Familiarity with the Topic, Choice Set, Resource Base.

We believe that a research agenda must be established in order to attack properly the issue of documenting the effects of experiential pedagogies. This chapter seeks to identify critical issues facing researchers in this area as well as to provide, elaboration on several factors which we consider salient in a total picture of experiential pedagogy evaluation research. There truly is a cornucopia of considerations in this area, and we urge that researchers adopt a systematic approach to selecting specific problems rather than arbitrarily selecting isolated relationships between idiosyncratic variables. If we continue along the latter path, definitive statements about the efficacy of experiential pedagogies will never be possible.

REFERENCE

- Bloom, B. S., H. D. Englehart, E. D. Furst, V. II. Hill, and D. R. Dratwohl (1956), Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook Cognitive Domain. New York: David McKay Company, Inc.

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Chapter 16

THE EVALUATION OF COMPUTER-BASED BUSINESS GAMES: METHODOLOGY, FINDINGS, AND FUTURE NEEDS

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This chapter reviews what is believed can be reasonably stated about the teaching efficacy of machine-based business games given the nature of the research available. The literature is both voluminous and useful as it contains a number of studies of utilitarian value. The literature, unfortunately, is seemingly unknown to a vast number of influential business educators and therefore both the gaming initiate and the general reader are given a false impression of the depth and variety of literature available. The review attempts to accomplish several purposes-- the delineation of what is known and not known about the teaching value of business games, a review of the hazards and pitfalls accompanying pedagogical evaluations, and an understanding of those areas where both cumulative and path-breaking business gaming research can be conducted.

What is Known About the Efficacy of Business Games

Over 300 candidates were considered for the review. To be selected, studies had to involve a machine or computer-based simulation and had to relate game, player, or instructor attributes to learning levels (or secondarily to game performance as a proxy for learning) as specified in the chapter entitled "A Cornucopia of Considerations in Evaluating the Effectiveness of Experiential Pedagogies" by Burns, Gentry and Wolfe. Each study featured a fairly rigorous research design. Anecdotal or testimonial reports were excluded as were studies that possessed fatal or compromising design flaws despite the importance of the research issue being pursued.

The review found that Educator Considerations within the experiential learning situation have not been researched as they relate to either game performance or learning. It was additionally found that game performance has been employed as a proxy for course-related knowledge gain although the accuracy of this proxy relationship has never been investigated. It appears that attitudes about the game, the course, and student feeling of accomplishment or self-worth are related to game performance rather than to learning levels although this relationship has not been rigorously investigated. No investigation has been conducted on the effect of pre-game attitudes on either the willingness to learn or to participate in the particular learning situation created by a business game.

Certain Student Attributes are related to game performance. Cognitive complexity affects how the game's environment is described while the role of academic achievement is related to team effects where high individual grade performance is positively related to firm performance. Group interaction effects appear to moderate team performance through a participant involvement factor researched in the literature as Cohesion within the Experiential Conduct variable. It has been found that instructors can influence the decisions made by teams.

Only two Concepts Covered in the Experiential Variable have been researched. Contradictory findings have been found regarding learning and game complexity while functional scope or roles within the game appear to be related to individual learning levels. Only a business game's

team size has been studied within the Nature of the Experiential Variable.

Although more than fifty studies were included in the review, many more could have been cited had their research plans been more rigorously designed or implemented, or the theoretical underpinnings of their hypotheses better conceptualized. Additionally, many interesting studies examined the business gaming process in isolation without relating the process variables to learning which was the review's dependent variable. The chapter concludes with an extensive bibliography.

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Chapter 17

EVALUATION OF EXPERIENTIAL LEARNING

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ABSTRACT

The purpose of this chapter is to review the literature appropriate for assessing experiential instructional methods in an attempt to 1) draw conclusions about the value of experiential learning and 2) raise issues regarding the nature and quality of research evaluating experiential learning. The literature reviewed includes all that is generalizable to the business school classroom and includes evaluation studies, contingency studies, studies from all university classrooms as well studies done in businesses and studies with theoretical rather than applied purposes.

This chapter discusses some of the problems inherent in the present state of experiential learning evaluation research. One problem is that there are very few studies and very few that could be called rigorous. Another important problem is that the actual outcomes from a given experiential classroom, exercise or program are difficult to pin down and are often different than those intended by the designer. This makes it difficult for researchers to identify and measure the real outcomes from a particular learning experience. Another important problem is that experiential evaluation studies are not theory based, so all that we learn from them is whether experiential learning is good or bad. Theory based research would tell us what it is about a pedagogy that is good or bad so we could improve upon it.

Given that the research is not rigorous, it is difficult to draw conclusions from it. However, some patterns emerge from an actual review of evaluation studies. Most of the research comparing the experiential method with other pedagogies in terms of learning cognitive material has found the experiential method to be about equal to others in facilitating cognitive learning. Some studies show the experiential method to be effective in teaching problem solving. The majority of studies reviewed show learners to have positive attitudes after participating in experiential pedagogies. Studies focusing on behavioral outcomes of experiential learning show the experiential method to be effective for helping learners become more sensitive, improve interpersonal communication and increase learners' awareness of how others see them.

Studies testing contingency hypotheses were also reviewed. These studies presume that experiential learning is effective under some conditions and not under others, and the results of the studies reviewed support the contingency notion.

Finally there have been a few studies focusing on the features of experiential pedagogies that facilitate positive outcomes. It has been found that experiential learning methods are more effective when feedback is an integral part of instruction and when the experience is a meaningful one for the learner.

The chapter ends with a section raising issues for future scholarly consideration. It is suggested that future evaluative studies 1) take care to evaluate experiential events in terms of the goals set for the event, rather than in very general terms; 2) evaluate experiential learning in behavioral terms; 3) assess the external validity of the experiential teaching method and; 4) be theory based and generate results potentially generalizable for all teaching methods.