THE EFFECTIVENESS OF A SIMULATION GAME AS A METHOD TO TEACH TIME MANAGEMENT TO COLLEGE STUDENTS

by

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PREFACE

The author extends appreciation and gratitude to the people who contributed to the completion of the study. Special acknowledgment is given to Dr. Florence McKinney, thesis adviser, for her guidance and encouragement throughout the endeavor; to Dr. Elizabeth Hillier who was instrumental in preparing the research proposal; to Dr. Elaine Jorgenson for her help in developing the achievement test; and to Miss Sue Herndon who willingly gave of her ideas and classes during the trials and revisions of the simulation game.

To the Department of Home Management, Equipment, and Family Economics, the writer wishes to convey thanks for the research and teaching assistantships that helped to make her graduate study possible.

Appreciation is also expressed to the sixty students who, unknowingly, participated in the study.

To her husband, Robert, the writer gives special recognition. His encouragement, creative suggestions, and patience all contributed to the completion of the study. He describes the simulation game in his poem, Time Decisions.

Time Decisions

Now is the time to make that decision.
A decision that may set one anew,
or place one in turmoil,
but a decision.
Time is a resource
that guides one's decisions,
or delays a decision.
But always a decision.

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INTRODUCTION

Time is a resource of individuals. Since resources, time included, are involved in all management situations, the way in which individuals and families use time becomes important.

The beginning level Home Management course at Oklahoma State University looks at the way in which individuals and families utilize their resources. An overall objective of the beginning level Home Management course at Oklahoma State University is: "To grow in ability to manage available resources for the purpose of attaining desired goals in order to enrich the life of the individual and the family and to promote the good of society."[1] In order for students to be able to manage effectively they must (1) be able to identify their values, goals, and standards; (2) be able to identify available resources; and (3) be able to apply the decision-making process to achieve satisfaction of values, goals, and standards through the use of available resources.

Applying the decision-making process (3 above) is the most difficult in 'arm-chair' home management classes and therefore, it is desirable to develop classroom teaching tools that allow students to

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[1] Resource Management Syllabus, Home Management Department, Oklahoma State University, Fall, 1970.

have actual experiences in application of management principles.

Statement of Problem

The problem of the study is: (1) to develop a simulation game to be used to teach time management in the three credit hour Home Management 2113 -- "Resource Management for the Individual and Family" -- classes at Oklahoma State University; and (2) to determine the Home Management 2113 student levels of learning achieved through use of the time management simulation game.

Significance and Background

Part I -- Time Management

It is interesting to many people that despite additional conveniences and resources available, the homemaker spends as much time on household tasks today as her counterpart did fifty years ago.[2] It must be noted that the amount of or "mix" of time spent on individual tasks has shifted because of changing family and social patterns.[3] Significant characteristics that affect the amount of homemaker's workload are: stage of family life cycle, age of homemaker, employment outside the home, and presence and age of children.[4]

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[2]Florence Turnbull Hall and Marguerite Paulson Schroeder, "Effects of Family and Housing Characteristics on Time Spent on Household Tasks," Journal of Home Economics, LXII (January, 1970), p. 23-29.

[3]Ibid. Also Paulena Nickell and Jean Muir Dorsey, Management in Family Living (New York, 1959), p. 132, and Kathryn E. Walker, "Homemaking Still Takes Time," Journal of Home Economics, LXI (October, 1969), 621-624.

[4]Walker, p. 621, and Nickell and Dorsey, p. 132.

A survey to determine activities for which employed homemakers want more time list personal activities including time for visiting and entertaining, reading, sewing, clubs and social and community activities, flowers and gardening, family activities, and church work.[5] Hunsicker, in her study on management problems of young employed homemakers, identified a variety of homemaking activities for which homemakers had difficulty finding time. Situations most frequently mentioned as causes of much difficulty were finding time for sewing, ironing, doing disliked tasks, seasonal home care, clothing care, and resting. Young homemakers also expressed difficulty in planning time to complete what was needed or desired.[6] That homemakers want more time for various activities and that they have difficulty making decisions regarding the use of their time is established.

"... every homemaker is constantly faced by the necessity of deciding the relative values of specific activities in terms of the welfare of her family and its individual members. Because of these facts, the management of her time ... is one of the ... homemaker's chief concerns."[7] Yet, despite the need for managing time, a study

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[5]Ella Smith Anderson and Cleo Fitzsimmons, "Use of Time and Money by Employed Homemakers," Journal of Home Economics, LII (June, 1960), 452-455.

[6]Norma Ann Hunsicker, "Management Problems of Young Employed Homemakers," (Ph.D. dissertation, Iowa State University, 1967), p. 96. p.

[7]Marriane Muse, Time Expenditures on Homemaking Activities in 183 Vermont Farm Homes (Vermont Agriculture Experiment Station, 1946), p. 3.

comparing home management practices of three generations revealed: "Without exception, they used some type of money plan, but their resources indicated that they were less conscious of planning for the use of time, energy, and skills than for the use of material resources."[8]

Consider the facts: Time for homemaking tasks has not decreased since 1920; homemakers have difficulty finding time to do all that is necessary or desirable; and homemakers, as a whole, do not consciously plan for the use of their time. It becomes increasingly apparent that the Home Economist, in order to aid the homemaker and her family, must be able to apply and to teach others the principles of management especially as they apply to use of time.

Part II -- Simulation Games

"Of the resources, time is one of the most difficult to understand."[9] For this reason, it is particularly important to have real-life-like applications of the management process to the use of time. Abstract concepts, within the framework of home management classes, need to be brought down to application level.

Managers in industry and government have long used simulation games to demonstrate real-life conditions. "... simulation teaches by putting the student in an environment and making him respond to

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[8] Pamelia Lott Millar, "Home Management Patterns of Three Generations," Journal of Home Economics, LIII (February, 1961), 95-99.

[9] Irma H. Gross and Elizabeth Walbert Crandall, Management for Modern Families (New York, 1963), p. 215.

its demands. By so doing, the student discovers for himself the results of his actions and is led to abstract the fundamental relationship present in the situation. It is this quality that classifies simulation as a heuristic teaching device."[10]

The development and implementation of a time management simulation game will provide the desired 'real' life applications. Students, through the simulation game, experience the processes of management--planning, controlling, and evaluation[11]--in use of time.

Objectives

1. To develop a simulation game to teach time management to beginning level home management students at Oklahoma State University.
2. To develop a test to evaluate student levels of learning with regard to time management.
3. To test the effectiveness of the simulation game as a method to teach time management by determining if there is a significant difference between student pretest and posttest scores.

Procedure

Step 1 Statement and definition of problem

A. Survey and review related literature.

B. Develop and write out significance and background of study.

C. State purposes and objectives of study.

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[10]Arthur J. Hogan, "Simulation: An Annotated Bibliography," Social Education, XXXIV (March, 1968), 242-244.

[11]Gross and Crandall, p. 5.

Step 2 Construct tools

A. Establish objectives for unit on time management.

B. Obtain information needed to create a simulation game.

1. Review literature available on simulation games.

2. Discuss simulation game with authorities available at Oklahoma State University.

C. Construct game to be used in study.

1. Have content validated by a Home Management authority.

2. Have empirical tryout of game in the Fall of 1970 Resource Management classes.

3. Revise simulation game and have field trial of game in the Spring of 1971 Resource Management classes.

4. Revise and finalize the form of the game for the study.

D. Construct test to determine if objectives of time management unit have been met.

1. Have validity checked with Home Management and Home Economics Education authorities.

2. Have clarity of and content of test items validated by students outside the designated population.

Step 3 Select sample

A. The population consists of college Home Economics students.

B. The sample is to be two non-randomly selected Home Management 2113 classes during the Fall semester of 1971. Classes, typically, have an enrollment of approximately thirty students.

Step 4 Treatment of data

A. Obtain subjective data.

1. Secure comments and reactions from students who use the simulation game.

2. Develop table in which to classify comments.

3. Make conclusions about subjective data.

B. Obtain objective data.

1. Administer pretest and posttest.

2. Develop chart to be used to collect data from pretest and posttest.

3. Statistical treatment to be used is the related t test.

4. Make conclusions about objective data.

Assumptions

With regard to study of time management, student level of learning can be measured. A test is a valid means of measuring level of student learning.

Data used in calculating related t test is assumed to come from a population that is normally distributed.

Definition of Terms

Home Management consists of a series of decisions using human and material resources to realize values and goals. Gross and Crandall identify the management process as containing "... three more or less consecutive steps: planning, controlling the various elements of the plan while carrying it through, whether it is executed

by oneself or by others; and evaluating results preparatory to future planning."[12] Nickell and Dorsey purport that the management process is "... a rational and intelligent method of dealing with change."[13] The process of management "... cast[s] the future of the family [and/or individual] in a mold of its own making."[14]

A Simulation Game based on real-life situations, "... is a sequential decision-making exercise structured around a model of a family or individual managerial situation; in it students assume the role of managers acting in a group situation, as members of multi-making decisions-making teams."[15] In essence, simulation games provide a learning environment that represents true-to-life experiences.

Decision-Making is the process of selecting one course of action from a number of possible alternatives in solving a problem or meeting a situation. Schlater identifies four components of the decision-making process: recognizing the problem, seeking alternative solutions, analyzing the alternatives, and choosing one alternative.[16]

Values, according to Nickell and Dorsey, "... are motivational factors in human behavior. They provide a basis for judgment, dis-

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[12]Ibid., p. 4.

[13]Nickell and Dorsey, p. 31.

[14]Jean Davis Schlater, "The Management Process and Its Core Concepts," Journal of Home Economics, LIX (February, 1967), 93-98.

[15]Virginia Lattes-Casseres, "Teaching Home Management Through Simulation and Other Methods: An Experimental Study," (Ph.D. dissertation, Michigan State University, 1968), p. 9.

[16]Schlater, p. 95.

crimination, and analysis, and it is these qualities that make intelligent choices possible between alternatives. Values grow out of human interests and desires. They are products of the interaction between an individual and some object or situation in his environment."[17]

Goals are that which an individual or family work toward or for. Goals are considered as demands or value-laden situational objectives[18] and are tangible things, objects, ends, or purposes.[19]

"A Standard is a measure of quality and/or quantity which reflects reconciliation of resources with demands."[20] "Stated another way, standards serve as a measure or criterion for measurement of objects, ways of doing things, and ways of living as we make judgments. They are what individuals and families will accept as adequate and worth working for."[21]

Resources "... are defined as means which are available and recognized for their potential in meeting demands. Means are represented by those things which have 'want satisfying power' and are instrumental in reaching of desired ends."[22]

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[17]Nickell and Dorsey, p. 39.

[18]Francille Maloch and Ruth E. Deacon, "Proposed Framework for Home Management, "Journal of Home Economics, LVIII (January, 1966), 31-35.

[19]Nickell and Dorsey, p. 50.

[20]Maloch and Deacon, p. 34.

[21]Nickell and Dorsey, p. 45.

[22]Maloch and Deacon, p. 32.

"Time with us is handled much like a material; we earn it, we spend it."[23] An example of time used as a material resource is a given span such as 8:00 to 8:30 a.m. However, a homemaker doing a given task during that time span is an example of time as a human resource. Therefore, it can be said, Time is both a material and human resource.

Limitations

The study is limited to a non-random sample of two classes of Home Management 2113 students enrolled during the Fall of 1971 at Oklahoma State University.

Variations of types and situations of homemakers are infinite. Although an attempt at a variety of roles is made, the simulation game is limited to ten player types.

Summary

A statement of the problem, the objectives of the study, a plan for procedure, and other relevant information have been included in this chapter. Chapter II will contain a review of related literature. The development of the time management simulation game will be explained in Chapter III and the method and design of the study will be explained in Chapter IV. An analysis of the data will be presented in Chapter V and the summary, conclusions, and recommendations will be found in Chapter VI.

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[23]Edward T. Hall, The Silent Language (New York, 1959), p. 29.

CHAPTER II

REVIEW OF LITERATURE

Review of related literature concerns two major areas. One area pertains to management of time as considered within the framework of home management and the other area relates to simulation games used as educational tools.

Time Management

Total Time Spent on Homemaking

Reviewing literature on time management was begun by investigating homemaker's time use in historical perspective. Research studies regarding homemakers' use of time have been made since 1920. In all cases, the studies have been accomplished through cooperation of homemakers who kept records of daily time use. All the studies are in general agreement on total weekly time spent on homemaking activities. The studies also agree on the rank order and approximate time spent on groups of household tasks--food activities, care of house, care of clothing, care of family members, and marketing and records.

The Bureau of Home Economics completed the first study on homemakers' time use in 1920. Since then many individuals have completed time use studies. During the 1920's and 1930's the following individuals studied homemaker time use: Ina Z. Crawford (1927), J. O. Rankin (1927), Inez F. Arnquist and Evelyn H. Roberts (1929), Maud

Wilson (1929), Grace E. Wasson (1930), and Jessie E. Richardson (1933). Jean Warren and Marianne Muse reported on time studies in 1940 and 1946, respectively. In 1952, Elizabeth Weigand and in 1953, May L. Cowles and Ruth P. Dietz studied homemaker time use. Changing Times and the Bureau of Laundry and Dry Cleaning researched employed homemaker's time use in 1965. The latest time study, to date, is Kathryn Walker's 1968 research.

The selected time studies used in Table I were chosen on three points. One was that the study was typical of homemaker time studies. Second was that, where available, studies included information about various types of homemakers--farm, non-farm rural, full-time city, and employed city. Third was to have a time use study representing each decade since 1920.

Factors Contributing to Constancy of Time Spent on Homemaking

That total time spent on homemaking tasks has remained fairly constant throughout the past fifty years is indicated by information presented in Table I. Information from selected studies shows little change in total time spent on homemaking tasks. Several factors can be attributed to the relatively stable total time allotment for household tasks. One is that the "mix" of time has changed over the years. Homemakers may be spending more time on some tasks and less time on others. Kathryn Walker, in her 1968 study, reported that time allowed for marketing and record keeping had more than doubled in the past fifty years while time allowed for food activities has decreased by 30

TABLE I

TIME USED FOR WORK BY HOMEMAKERS

Study	Date	Number	Homemaker type	Average weekly time on Household Tasks		Total Work Time (includes household work, paid employment, farm work, community services)	
				Hours	Minutes	Hours	Minutes
Bureau of Home Economics* (p. 128)	1920	559	farm	51	40	61	15
		249	other rural	51	31	55	59
		282	city under 100,000	49	30	51	34
		410	city over 100,000	47	9	49	14
Wilson* (p. 14)	1929	288	farm	51	36	63	48
		71	country non-farm	54	48	60	42
		154	non-country non-farm	51	30	54	48
Warren* (p. 19)	1940	497	farm	51	54	60	45
Wiegand* (p. 13)	1952	95	farm	52	30	63	0
		102	full-time city	52	30	56	42
		53	employed city	28	0	77	35
Walker* (p. 624)	1968	979	full-time city	56	0	62	5
		317	employed city	37	6	71	3

*See bibliography.

minutes per day.[24] It could be that some of the time previously used in food preparation and clean-up has gone now into selecting and buying convenience foods.

Another factor contributing to the homemakers' unchanging time allotment for household tasks is the decrease in assistance either from family members or hired help. The 1968 Seattle study reported that homemakers hired, on the average, only half an hour of household help per week.[25] The point that assistance from family members has decreased could be disputed. Walker, in her 1970 Time-Use Patterns talk, indicated that if we had comparable records for 20 or 30 years ago we could see a change in help from husbands--more sharing of the work today.[26]

Still another reason why homemakers' total time allowance for household tasks has not decreased could be reflected in higher homemaker standards. The labor saving equipment and appliances in today's homes allow homemakers to do a "better" job. The 1968 Seattle study found that neither the number of appliances nor any particular kind of appliance showed a significant effect on the total hours per week spent at all household tasks. The only labor saving appliance which was found to have an effect on the time spent on any household task was the dishwasher. Homemakers with dishwashers spent an average of 4.9 hours per week on dishwashing compared to 6.3 hours for those who

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[24]Walker, p. 622.

[25]Hall and Schroeder, p. 29.

[26]Kathryn E. Walker, "Time-Use Patterns for Household Work Related to Homemakers' Employment," talk at 1970 National Agricultural Outlook Conference, Washington D. C., February 18, 1970.

did not have dishwashers.[27] If additional time is gained through use of household equipment that time, it appears, is used to do a better job on specific household tasks or to use the time to do other housework.

The idea that homemakers may use the time to do other work suggests another factor relating to the homemakers' fairly constant time allowance to homemaking. All people--homemakers included--have a psychological need to work, to be interested in work, to like work, and to realize rewards from work.[28] Man is born with a desire to spend part or each day in creative or productive work. "Perhaps this drive to work explains why time used for homemaking by homemakers has changed relatively little in the past 30 years despite increase in amount of capital invested in household equipment and decrease in size of households and of homes."[29]

Factors Affecting Time Spent on Homemaking

The total amount of time a homemaker spends on homemaking is affected by many things including gainful employment outside the home, age and number of children, age of homemaker, and housing characteristics. Full-time homemakers in 1920, 1952, and 1968, spent 7.3, 7.4 and 8.0 hours per day, respectively, on household work. Employed homemakers in 1952 and 1968 spent 4.1 and 5.3 hours per day, respectively, on household work. These figures, as well as weekly averages in Table I,

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[27]Hall and Schroeder, p. 26.

[28]Bernice Milburn Moore, "Time, Tension, and Mental Health," Journal of Home Economics, XLIX (December, 1957), 759-763.

[29]Jean Warren, "Time: Resource or Utility?" Journal of Home Economics, XLIX (January, 1957), 20-22.

indicate that employed homemakers spent considerably less time on homemaking tasks than did full time homemakers. Though homemakers tend to work for pay when the household work load is relatively small,[30] the total work load of employed homemakers results in long hours of work. Note again, Table I where employed homemakers in 1952 had a work week 77.5 hours long as compared to full-time homemakers whose work week averaged 56.7 hours. The same held true in 1968 where employed homemakers averaged 71.0 hours of work per week as compared to the 62.0 hours for full-time homemakers. Employed homemakers had a long work week compared to full-time homemakers even though employed homemakers spent less time on homemaking than did full-time homemakers.

The number of children affects the homemakers' work time as is indicated by Table II. As total number of children in a family increased, the hours needed for household work tended to increase whether or not a homemaker was employed. Full-time homemakers, however, spent consistently two hours more in household work than employed homemakers regardless of number of children.

The age of the youngest child in the family also affects the homemakers total work load as is indicated in Table III. From information in Table III it is apparent that younger children took more of the homemakers' time. Babies took 2½ hours more of the mothers' time per day than did teenagers. Employed homemakers, even with small children, spent less time on household work, but the total time contributed by other workers was greater for employed homemakers. Families with babies and employed mothers had a greater number of total work hours than did

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[30]Walker, p. 624.

TABLE II

AVERAGE HOURS OF HOUSEHOLD WORK PER DAY RELATIVE TO NUMBER OF CHILDREN[31]

Number of Children	Full-time Homemaker	Employed Homemaker
	average hours/day	
0	5.7	3.7
1	7.4	5.1
2	8.4	5.9
3	8.1	6.0
4	8.7	6.2
5+	9.9	6.4

TABLE III

AVERAGE HOURS OF HOUSEHOLD WORK PER DAY RELATIVE TO THE AGE OF THE YOUNGEST CHILD[32]

Age of Youngest Child	Full-time Homemaker		Employed Homemaker	
	Wife	All Workers	Wife	All Workers
	average hours/day			
Under 1	9.5	12.2	7.5	13.2
1 year	8.5	11.1	7.0	11.3
2-4 years	8.2	11.1	6.0	9.4
6-11 years	7.6	11.6	5.8	9.3
12-17 years	7.0	10.8	4.8	9.4

[31]Walker, February 18, 1970.

[32]Ibid.

the full time homemaker families with babies. Indications were that older children and husbands were sharing the work.

The age of the homemaker also affects the total time spent at household tasks as is illustrated by information in Table IV. Noting

TABLE IV

AVERAGE HOURS PER WEEK AT HOUSEHOLD TASKS BY AGE OF HOMEMAKER[33]

Age of Homemaker	Average Hours/Week
25 or under	40.2
26-40	57.3
41-65	45.1
over 65	53.1

Table IV indicates that the homemakers aged 26-40 spent more hours per week, on the average, at household work than those aged 41-65 and those under 25. Reasons for variation in time spent on homemaking can be related to employment, stage of family life cycle and energy level of the homemaker. On the average, homemakers aged 25 and under worked more hours for pay, 21.7 hours per week, compared to 11.0 and 12.1 for those in the 26-40 and 41-65 age groups, respectively. None of the over age 65 homemakers worked for pay.[34] Homemakers aged 26-40 typically belong

[33]Hall and Schroeder, p. 26.

[34]Ibid.

to the beginning and expanding stages of the family life cycle. (Information regarding number and age of children has been previously cited.) Older homemakers, no doubt, have lower energy levels than do younger homemakers. With decreased energy, more time is needed to complete homemaking tasks. Hence, elderly homemakers with lowered energy levels pay in extra time output.

Other conditions influencing total time spent on homemaking are housing characteristics. Among many housing characteristics studied by Hall and Schroeder in Seattle in 1968, the only one which was shown to have any effect on the homemakers' work week was the size of the dwelling. Homemakers living in dwellings with under 1000, 1000 to 2500, and over 2500 square feet in size spent 41.5, 50.0, and 54.6 hours per week at house care, respectively.[35] Cowles and Dietz reported a similar finding in that they found that women who spent more time on house care lived in two story houses and/or houses with basements.[36]

Time Allotments to Household Task Groups

Homemaker's time expenditure for the various household task groups--food activities, care of house, care of clothing, care of family members, and marketing and records--are indicated by Figure 1. By comparing the studies of Wilson, Wiegand, and Walker, it is evident that food activities claim more of the homemakers' time each day than

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[35]Ibid.

[36]May L. Cowles and Ruth P. Dietz, "Time Spent in Homemaking Activities by a Selected Group of Wisconsin Farm Homemakers," Journal of Home Economics, XXXXVIII (January, 1956), 29-35.

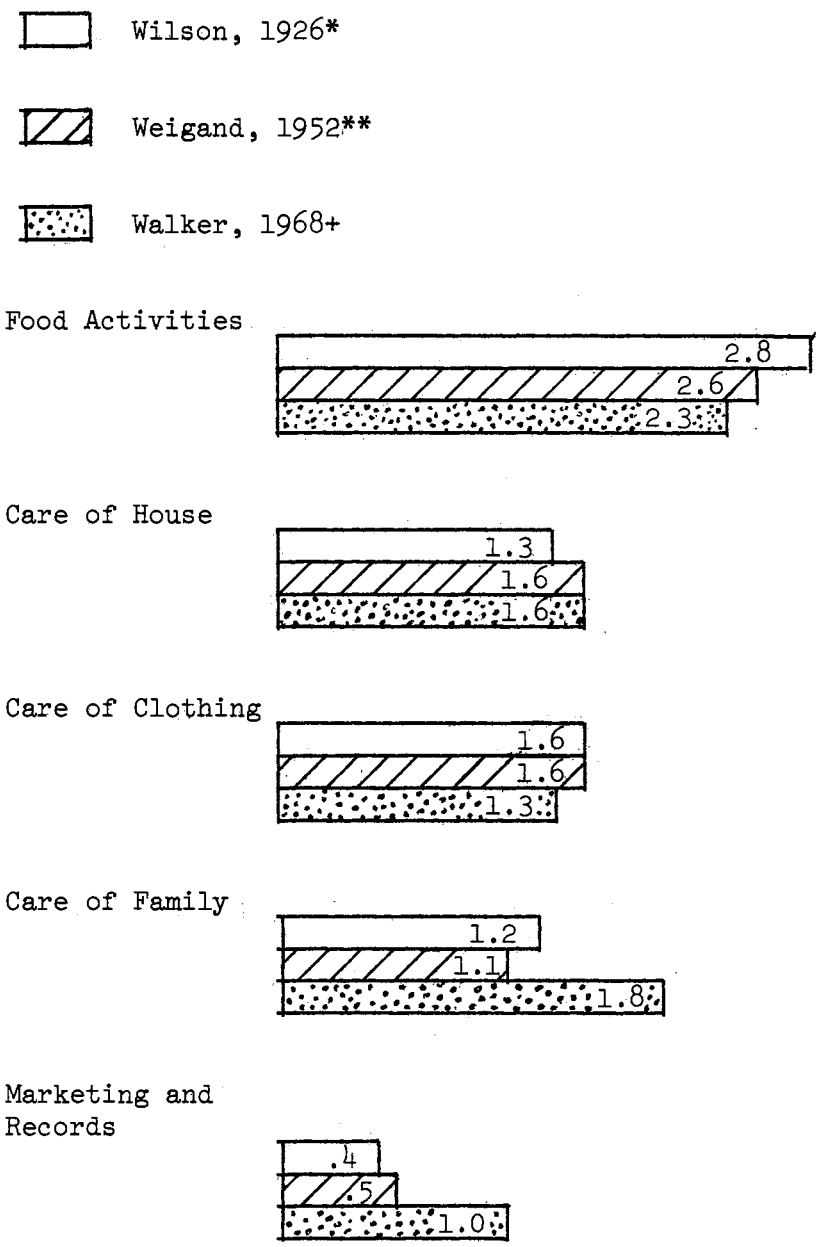

Figure 1. Average Time Per Day Used for Household Work by Full-time Homemakers

* Maud Wilson, Use of Time by Oregon Farm Homemakers, Oregon State College, Agriculture Experiment Station Bulletin 256, 1929.

** Elizabeth Weigand, Use of Time by Full-time and Part-time Homemakers in Relation to Home Management, Cornell University, Agriculture Experiment Station Memoir 330, 1954.

\+ Kathryn E. Walker, "Homemaking Still Takes Time," Journal of Home Economics, LXI (October, 1969), 621-624.

any other household task group. Care of the house in 1926 and 1952 was the second ranked activity and care of the family third. However, in 1968 care of family members was second on the list and care of the house third. Care of clothing continues to rank fourth and marketing and record keeping fifth in time spent on household work.

Problems of Time Management

Homemakers do not always plan for use of time and, when they do, they often find planning is difficult. Pamelia Lott Miller, in 1961, reviewed home management patterns of three generations. She found that, without exception, they used some type of money plan, but their resources indicated that they were less conscious of planning for use of time, energy, and skills than for the use of material resources.[37] Starley M. Hunter, reported on Homemakers' problems also in 1961. She noted that 65% of the women interviewed thought that planning the use of family resources was harder than it had been two or three years ago and almost 60% thought their hardest problem was time.[38]

Homemakers want additional time. Employed homemakers, according to Anderson and Fitzsimmon's study, want more time for various activities. Twenty-five percent of the 190 Virginia homemakers wanted more time for visiting and entertaining; 24 percent wanted more time for reading; 22 percent wanted more time for sewing; 20 percent wanted more time for clubs and social and community activities; 18 percent

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[37]Millar, p. 96

[38]Starley M. Hunter, "Homemakers Name Their Home Problems," Journal of Home Economics, LIII (June, 1961), 425-427.

wanted more time for family activities; and 13 percent wanted more time for church work.[39]

Homemakers have difficulty finding time for some household tasks. Hunsicker's research of management problems of 250 young employed homemakers revealed three situations most frequently mentioned as causing some or much difficulty. These were finding time for sewing, ironing, and putting off disliked jobs. Other frequently mentioned problems were finding enough time for seasonal home care, clothing care, and time for resting. Knowing and using shortcuts for home tasks proved difficult for over one-third and adjusting to the unexpected was a problem for over one-fourth. Difficulty was expressed in planning time in order to complete what was needed or desired.[40]

Because homemakers identify time management as a problem, have difficulty planning time use, and want more time, instruction involving time management is in order. Further, use of time plans leads one to think through work problems in advance, thus doing away with indecision and uncertainty.[41] Homemakers, however, will not only want to be able to efficiently manage time, but relate time management to influences on individual and family life.[42]

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[39]Anderson and Fitzsimmons, p. 455.

[40]Hunsicker, p. 96.

[41]Nickell and Dorsey, p. 138.

[42]Management Problems of Homemakers Employed Outside the Home, U. S. Office of Education, Vocational Division Bulletin No. 289, 1961, p. 44.

Tools of Time Management

The principles of efficient time management involve established tools of time management. Each time management tool is identified and explained as follows:

Peak Load. Packed periods when activities pile up on each other at certain times of the day, the week, the month, or the season are peak loads. The wise manager of time attempts to level off peak loads by starting work early or completing regular work ahead of time to give extra time for special demands.[43]

Work Curve. A device that indicates output of work over a period of time is a work curve. A typical work curve consists of a warm-up period, a plateau of greatest output, and a gradual decrease in production.[43]

Sequence of Activities. Order of tasks can be arranged so that they are carried out with the least amount of tension and effort. Overlapping, dovetailing, and combining tasks are methods of saving time.[45]

Time Requirements for Activities. A workable plan necessitates estimating time to satisfactorily and easily complete specific tasks. Time studies, as well as personal observations, can be the basis for time cost estimations.[46]

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[43] Gross and Crandall, p. 225.

[44] Ibid., p. 226-227.

[45] Nickell and Dorsey, p. 141.

[46] Ibid., p. 142.

Rest Periods. Use of rest periods has a favorable influence on work output. The homemaker must determine the frequency, length and type of rest periods best suited to herself.[47]

Time for Emergencies. Unplanned and unexpected interruptions can make time plans difficult to follow. Flexibility incorporated through free time can be used to meet emergencies.[48]

Developing and Using Time Plans

Keeping in mind the tools of time management, plans for time use can be developed. Nickell and Dorsey list four steps to use in the development of a time schedule. The steps are: 1) List the everyday, weekly, special, and recreational activities of the family. 2) Make a weekly plan for everyday or routine tasks and note those that must be done at a particular time. 3) Complete the weekly plan by fitting weekly, special, and seasonal jobs into free blocks of time. 4) Decide who will do the various tasks.[49]

Gross and Crandall identify six steps to use in the development of a time schedule. The steps are: 1) List all items to be included, grouping under flexible and inflexible. 2) Set down as accurate an estimate of time for completing each as is obtainable. 3) Bring total estimate time needed and total time available into harmony. 4) Determine time sequence. 5) Write out plan. (optional) 6) If individual

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[47] Gross and Crandall, p. 230-232.

[48] Nickell and Dorsey, p. 142.

[49] Ibid., p. 143-145.

plans must mesh with another's, coordinate them.[50] The steps given in each of these two standard text-books are aids in developing time plans and can be used as such or adapted for personal use. The important thing is to plan the use of time.

Carrying out of a time plan involves "controlling." Of course, factors incorporated into the time plan can aid in control. Flexibility with catch-up periods makes controlling simpler.[51] [52] Also the breaking down of tasks into parts allows the planner to check progress and make necessary adjustments.[53] Individuals differ in their ability to control use of time, but control is necessary to make a plan work.

Finally, evaluation of the management of time must be considered. Evaluating is a constant process within the management of time. Planning time schedules, controlling time usage, and looking back at accomplishments and/or failures all include evaluation. Nickell and Dorsey suggest this criteria for evaluation of time management: "We may consider any plan successful that makes possible the attainment of individual and family goals without wasting available resources or causing unnecessary tensions.[54]

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[50] Gross and Crandall, p. 235.

[51] Ibid., p. 238.

[52] Nickell and Dorsey, p. 1248.

[53] Gross and Crandall, p. 299.

[54] Nickell and Dorsey, p. 149.

Simulation Games

Definition of Simulation Games

"Simulation may be defined as the creation of realistic games to be played by participants in order to provide them with lifelike problem-solving experiences related to their present or future work. Such game situations require each player to make decisions based on previous training and available information. After the player encounters an incident and makes a subsequent decision, he is provided with opportunities to see and/or discuss one or more possible consequences that may result."[55] In short, a simulation game is building or using a simplified model to see what something in real life might be like.

Characteristics of Simulation Games

Simulation, a model or analog to a real situation, is created for the purpose of testing or teaching. Simulation is usually employed in one of three ways:

1. to evaluate or analyze an existing system (operations analysis);
2. to develop and evaluate a model or plan for a new system (experimentation, prediction); or
3. to provide a learning environment that represents a life situation (training, transfer).[56]

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[55] Donald R. Cruickshank, "Simulation: New Direction in Teacher Preparation," Phi Delta Kappan, LVIII (September, 1966), 23-24.

[56] Isabel H. Beck and Bruce Monroe, "Some Dimensions of Simulations," Educational Technology, IX (October, 1969), 45-49.

James S. Coleman has identified essential properties of a simulation game as indicated below:

1. Its basic elements are players or actors, each striving to achieve his goal.
2. It is limited to a small, fixed set of players.
3. Its rules limit the range and define the nature of legitimate actions of the players.
4. Its rules establish the basic order, sequence, and structure within which the actions take place.
5. It is delimited in time as well as extensivity, with an end defined by rules.
6. Its rules constitute a temporary suspension of some of the ordinary activities of life and rules of behavior by substituting for them these special time-and-space delimited ones.[57]

Beck and Monroe have identified what they call "four crucial characteristics" of simulation games. The first characteristic, that of analogous circumstances, provides a setting in which a learner can function. The setting is assumed to have enough of the characteristics of the real environment to provide practice in meeting contingencies which could occur in the learner's life.

The second characteristic insures low risk input. The learner can make a response without irrevocable commitment and without destroying the original circumstances.

Low risk input leads to the third characteristic--symbolic consequences. The simulation system tells the learner the consequence of

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[57]James S. Coleman, "Academic Games and Learning," National Association of Secondary School Principals, LII (February, 1968), 62-72.

his response.

The fourth, and final characteristic, provides replicability. That is, an opportunity to repeat the process is available.[58]

In developing a Simulation-Gaming Continuum, illustrated by Figure 2, Ochoa cited two facts: 1) The simulation process is important to the educator because through simulation it is possible to simplify complex processes. 2) The conflict manifested in most games gives them a decision-making characteristic that when simulated can be significant to classroom use.[59]

The essence of Figure 2 is that only some games can be properly called simulations and only those simulations that have gaming characteristics are simulations games. In order for a simulation game to be a simulation game, a combination of certain characteristics of both games and simulations must be present. The game must model reality and the simulation must be a mathematical or verbal model.

Advantages of Simulation Games as Educational Devices

Perhaps above all, educational games are important because of their ability to motivate. "Playing a game with a given content has precisely the effect of learning to be motivated toward that goal. I suggest that it is precisely the step that is missing in the usual conception of a school's task that the game fulfills--the learning which leads a child

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[58]Beck and Monroe, pp. 45-46.

[59]Anna Ochoa, "Simulation and Gaming: Simile or Synonym?" Peabody Journal of Education, XLVII (September, 1969), 104-107.

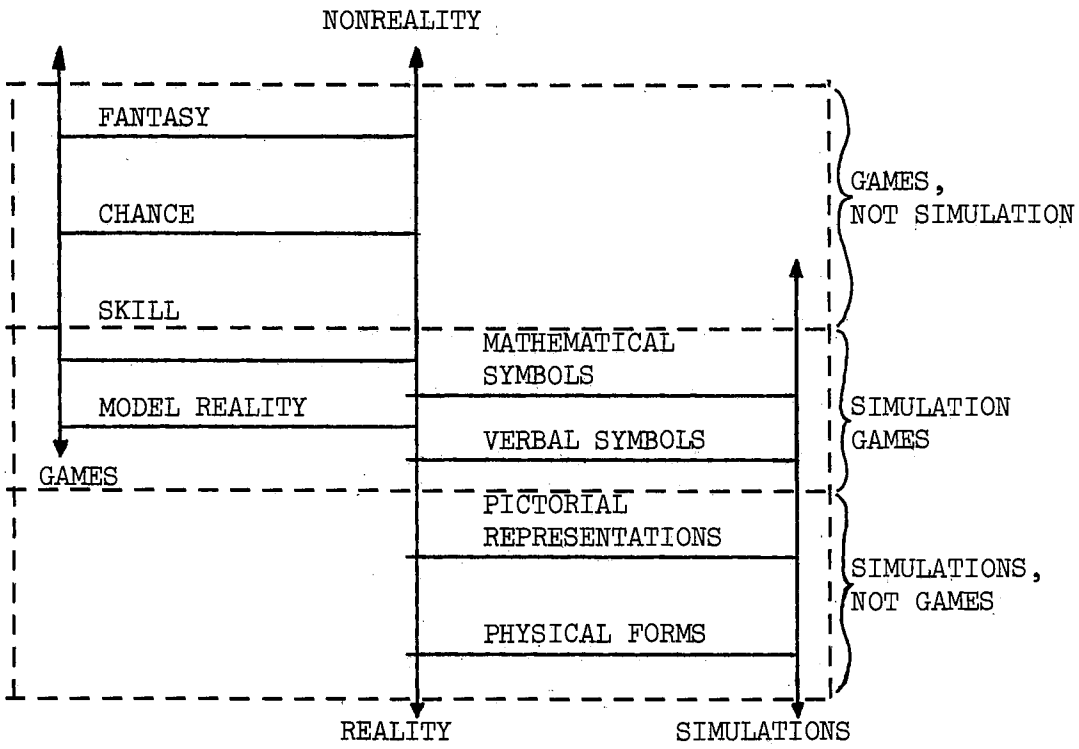

Figure 2. Simulation-Gaming Continuum

to actively assimilate the information transmitted to him in school."[60]

Simulation uses all types of materials and techniques to recreate actual situations. It can place a student in a more realistic learning environment than any other process of learning, except actual

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[60]Richard Hooper, "Play the Game U. S. Style," The Times Educational Supplement, CCLXXVII (August 9, 1968), 265.

experience.[61] By putting the student in an environment and making him respond to its demands, the student discovers for himself the results of his actions and is led to abstract the fundamental relationships present in the situation. It is this quality that classifies simulation as an heuristic teaching device.[62]

The flexibility of simulation games in placing the "... responsibility for imaginative and critical thinking on the students themselves is one of the chief characteristics of modern simulations...."[63] Students make the decisions and the teacher merely supervises.

The very fact that simulation games are games is advantageous. Games "... are far more self disciplining than most other forms of learning. In games, the discipline arises internally, from the necessity to obey the rules if the game is to continue."[64]

Simulation games are self-judging. The teacher's role as judge and jury is diminished because the game enables the student to see for himself the consequences of his actions.[65]

Simulation games are safe. That is, they make possible a situation where the learner discovers the consequences of his actions without

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[61] Arthur H. Rice, "Educators Will Hear a Lot About Simulation Technics," Nation's Schools, LXXVIII (October, 1966), 10ff.

[62] Hogan, p. 242.

[63] Robert Boardman, "The Theory and Practice of Educational Simulation," Educational Research, XI (June, 1969), 179-184.

[64] Sarane S. Boocock and James S. Coleman, "Games with Simulated Environments in Learning," Sociology of Education, XXXIX (Summer, 1966), 215-236.

[65] James S. Coleman, "Learning Through Games," NEA Journal, LVI (January, 1967), 69-70.

danger to himself or expensive equipment. He can afford to make mistakes.[66]

Feedback is usually much more rapid in the game than in real life. Schild reports that students perceived the rapidity of feedback when asked the question, "What are the major differences between the game and real life in the family?" One student responded with the concise statement, "In the game you see the results of your behavior much faster."[67]

Users of simulation games report a high transfer of training from classroom instruction to the real world. Cruickshank feels more research should be done on learner transfer from simulated to real situations. However, he noted that student teachers felt simulation experiences were very helpful in developing methods of coping with classroom problems.[68]

Simulation games go beyond knowledge and understanding. They provide a wider range of experiences touching on the affective domain as well as the cognitive domain. Attig reported in his study that students in their own evaluations of a simulation game indicated certain changes of attitude as a result of their participation in the game.[69]

Simulation games have been shown to be useful with special groups of students. For example, the brighter individuals are not penalized

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[66]Hooper, p. 265.

[67]E. O. Schild, "The Shaping of Strategies," The American Behavioral Scientist, X (November, 1966) 1-4.

[68]Donald R. Cruickshank, "Simulation," Theory into Practice, VII (December, 1968) 190-3.

[69]John C. Attig, "The Use of Games as a Teaching Technique," Social Studies, LVIII (January, 1967) 25-28.

by their peers for showing the others up as in other types of classroom instruction, but are actively encouraged to help their team win.[70] On the other hand, games have been shown to be motivating to the disadvantaged child and the child with reading problems. In fact there is some evidence that the disadvantaged child is at less of a disadvantage in educational games than in the conventional conditions.[71] Further, one of the great benefits of educational gaming is that the same game can be played and enjoyed, and be effective with a broad range of ages and abilities.[72]

Limitations of Simulation Games as Educational Devices

The validity of simulation games as educational tools is not proven. Cherryholmes, a political scientist at Michigan State University, said his findings were disappointing. While agreeing that simulations do create more student motivation and interest, he found that they produce no consistent or significant difference in learning, retention, critical thinking, or attitude change.[73] "We know little about the effectiveness of management games as an instrument of instruction. Indeed, we do not even know for sure how to distinguish a

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[70]Hooper, p. 265.

[71]Elliot Carlson, "Games in the Classroom," Saturday Review, L (April 15, 1967), 62-64.

[72]Hooper, p. 265.

[73]Cleo Cherryholmes, "Some Current Research on Effectiveness of Educational Simulations; Implications for Alternative Strategies," American Behavioral Scientist, X (October, 1966), p. 4-7.

good game from a bad one."[74]

It is difficult to achieve fidelity to the real situation. For example, most simulation games provide for uniformity of initial player resources, while in real life it is seldom true. In addition, most games have uniform rules, clearly known by players. In real life, rules are continuously modified and may even be unknown. Further, formal games are highly competitive whereas most life processes are based on cooperation.[75]

For the teacher who sees his role as the "supplier of all answers," simulation could be highly threatening. The teacher must be secure enough to allow situations to develop for which there is no "right" answer.[76]

The advantage of student involvement, to some critics, could be a limitation. Intense emotions, interpersonal rivalries, and the desire to win by some students could hinder the learning process.[77]

Simulation models are deceptively easy to conceptualize and because few abstractions need be made in constructing simulation models, simulation may be chosen over other methods of analysis. However, the costs in time, money, and personnel may be higher than anticipated.[78]

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[74] H. B. Thorelli and R. L. Graves, Operations Simulation (New York, 1964), p. 25.

[75] Clark C. Abt, Games for Learning (Cambridge, Massachusetts, 1966), p. 9.

[76] Virginia M. Rogers and Marcella L. Kysilka, "Simulation Games: What and Why," Instructor, LXXIX (March, 1970), 94-95.

[77] Lattes-Casseres, p. 29.

[78] Robert C. Meier, William T. Newell, and Harold Pazer, Simulation in Business and Economics (Englewood Cliffs, New Jersey, 1969), p. 23.

Designing a Simulation Game

Step-by-step procedures for developing simulation games have been outlined. Abt proposed an educational design procedure. It consists of: 1) a system analysis of the substantive problem, process, or situation to be taught; 2) the design of a logical mathematical model that is a simplified manipuable analog of the process of problem to be taught; 3) the design of a human player simulation of the model; and 4) the refinement of both the original system analysis and abstract model through repeated test plays of the game.[79]

Twelker proposed a 13 step procedure to use in the design of an instructional simulation game. Figure 3 illustrates the steps he has outlined. The approach may be summarized as: 1) determining what shall be taught; 2) determining how best it might be taught; and 3) validating the system. Twelker also points out the fact that a simulation experience should not be conceived of as an isolated experience taken out of context of the overall instruction. Instead, simulations should be accompanied by other non-simulation components.[80]

Administration of Simulation Games

"While a game is not an end in itself, the manner in which a game program is organized and administered will have significant bearing on the educational value.[81] The briefing and critique sessions probably

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[79]Abt, p. 10.

[80]Paul A. Twelker, "Designing Simulation Systems," Educational Technology, IX (October, 1969), 64-70.

[81]Joel M. Kibbee, Clifford J. Craft, and Burt Nanus, Management Games (New York, 1961), p. 63.

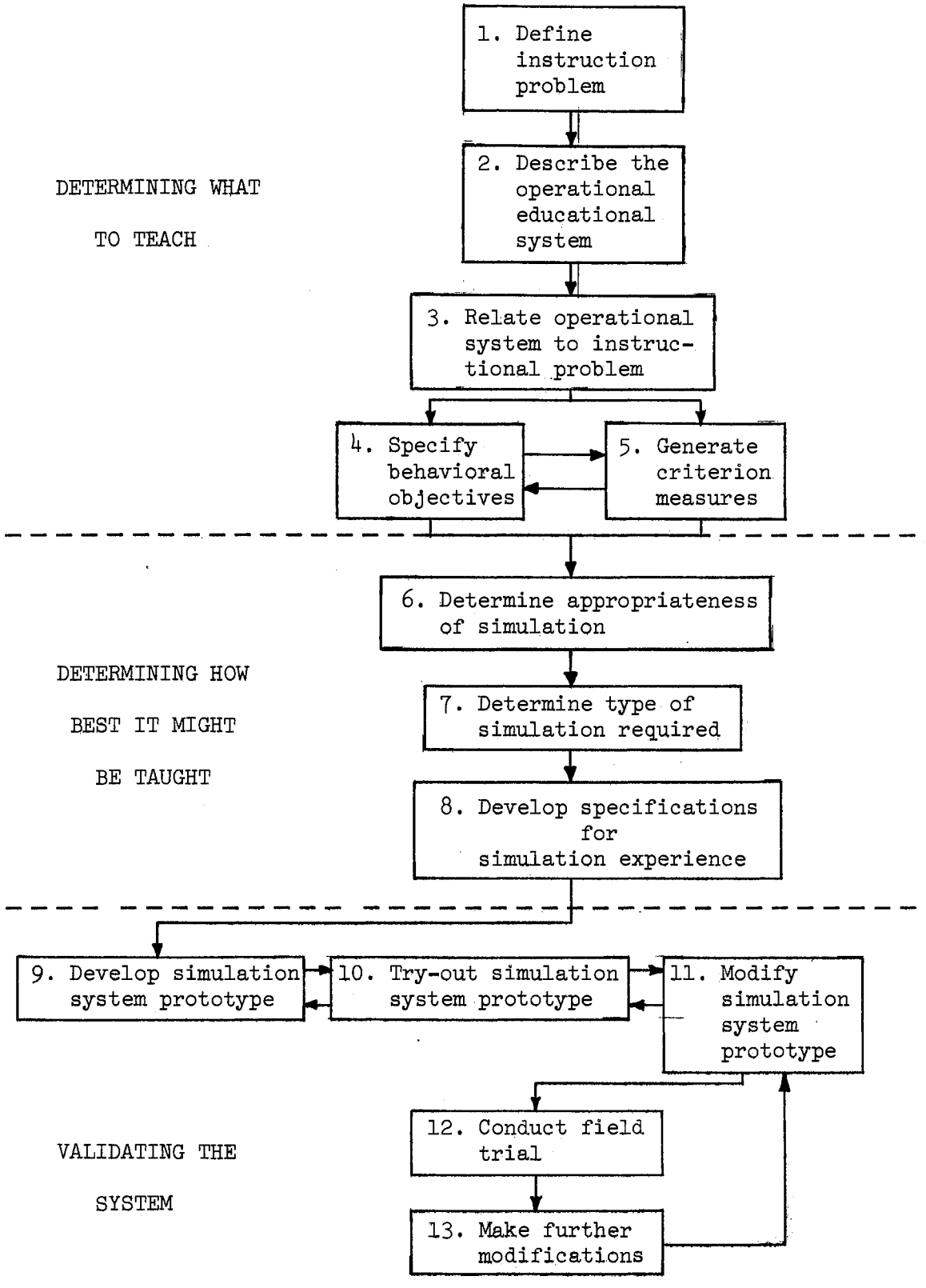

Figure 3. Steps in the Design of an Instructional Simulation System.

leave the greatest impression on the players and observers.

The briefing session provides the administrator with the opportunity to guide the participants toward the training objectives and to put the educational value of the game into proper perspective. In the briefing sessions it is important to explain the mechanics of the game as well as the rules in order to avoid confusion regarding either.

Kibbee, Craft, and Nanus provide a check list on briefing of simulation games as follows:

1. Distribution of material
2. Introduction to the history of simulation and gaming
3. Outline objectives of gaming
4. Introduction to the game
5. Starting conditions
6. Decision forms
7. Time schedule and end effect
8. Preparation for the critique session.[82]

The critique session, in many ways, is the most important part of the game. During the game itself, whatever teaching or instruction takes place is largely self-learned. Some of the lessons that the designer of the game hopes to teach by means of the simulation game, however, are not always apparent to the players. Guidance during the critique can focus attention on the points to be illustrated.[83]

If the simulation game is to adequately meet the educational objectives, it must produce behavior indicating that learning has

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[82]Ibid., p. 76-78.

[83]Ibid., p. 85.

occurred. The administrator's job is to set things up initially and make adjustments as play proceeds so that the desired behavior will be evoked. Careful planning and executing of the simulation game aids in accomplishing desired ends.[84]

Summary

Included in Chapter II has been a review of literature concerning time management as it relates to the homemaker. Total time spent on homemaking, problems homemakers have in relation to time management, and techniques of time management have been discussed.

Also included in Chapter II has been a discussion of simulation games. The characteristics, advantages and limitations, and methods of designing and using simulation games are given.

Chapter III will discuss the steps used to develop the simulation game.

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[84] Paul S. Greenlaw, Lowell W. Herron, and Richard H. Rawdon, Business Simulation (New Jersey, 1962), p. 200.

CHAPTER III

DEVELOPMENT OF THE TIME MANAGEMENT GAME

The instructional problem was to teach time management to students in the beginning level home management theory course at Oklahoma State University. The Time Management Game, a simulation experience, was designed to enhance the learning by creating a life-like experience. The discussion which follows describes the steps involved in the development of the simulation game.

Objectives for Unit on Time Management

The process of developing a simulation game included establishing objectives. The behavioral objectives for the unit on time management for the Home Management 2113 course, "Resource Management for the Individual and Family," at Oklahoma State University for the Fall of 1971 were stated as follows:

Upon completion of the unit on time management, the student should:

1. be able to identify and define terms related to time management.
2. be able to interpret research findings related to homemaker time use.
3. be able to identify the relationship between goals, values, and standards and time management.

4. be able to apply management concepts in planning for time use.
5. be able to analyze a time plan in relation to tools of time management as identified by Paulena Nickell and Jean Muir Dorsey in Management in Family Living and Irma H. Gross and Elizabeth Walbert Crandall in Management for Modern Families.

It seemed plausible that the foregoing objectives could be achieved through use of a time management simulation game in combination with other classroom learning experiences.

Roles for the Simulation Game

After deciding to use a simulation game, the game itself had to be developed. It was decided that the roles for the simulation game would be confined to homemakers. However, an attempt was made to provide a diversity of homemaker roles. Roles included young, middle-aged, and elderly homemakers; single, married, widowed, and divorced homemakers; women and men homemakers; homemakers from low and middle socio-economic levels; rural and urban homemakers; full-time and employed homemakers; homemakers with a variety of physical abilities. The role descriptions are shown in Appendix A, pages 71-80.

Simulation Game as Application of Management Process

The game is a life-like experience in applying the management process to the use of time. Part of the first phase of the management process, the planning stage, involves identifying values. Based on values appropriate goals are selected. Planning also includes developing a time plan. See Appendix A, page 71 for the Role Description Form on which values and goals are recorded and Appendix A, page 83

for the Daily Activity Planning Form on which time use is planned.

To aid students in identifying values, a list of values typical in our society is provided for players. The list, taken from Bowman's study,[85] is a summary of values related to Home Management that were researched in 13 Home Economics Studies. The list of values is given in Appendix A, page 81.

To aid students in identifying goals, a list of household tasks is provided for players. The list, based on the five household task groups--food activities, care of house, care of clothing, care of family members, and marketing and records--gives specific jobs homemakers do within each group. The list is given in Appendix A, page 82.

Controlling, the second phase of the management process, involves coordinating, actuating, and adjusting the plan. In order to provide an experience in controlling, CHANCES were developed. The CHANCES are unexpected events that affect the day's plan at a specific time with a specific activity. Players apply the decision-making process in adjusting to the CHANCES. See Appendix A, pages 84-85 for examples of CHANCES and page 83 for the Daily Activity Planning Form on which adjustments to the CHANCES are recorded.

One of the methods of adjusting to a CHANCE is to exchange the resource, money, for the resource, time, in order to achieve established goals. Players can use money to buy time in the form of completed tasks. A list of tasks that can be purchased is provided and shown in Appendix A, page 86.

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[85] Mary Nell Bowman, "Values Related to Home Management Recognized by Selected Home Economics Majors at Oklahoma State University," (Master's thesis, Oklahoma State University, 1964), p. 14.

Evaluating, the final step in the management process, involves analyzing the workability of the plan as well as estimating the progress toward goal achievement.

Simulation Game Trials

In its development the game underwent several trials. An empirical tryout was held the Fall semester in 1970 with two sections of the Home Management 2113 course. Also, during the Fall of 1970 the game was used with a graduate level course, Home Management Residence Administration. The following semester, Spring of 1971, a field trial was conducted with two of the Home Management 2113 classes. It was through these trials that the game was refined for use in this study.

Incorporating the Simulation Game into the Unit on Time Management

The time management unit, into which the simulation game was incorporated, took six class periods of 50 minutes each. The first class period was used to pretest students and to present the unit objectives and to make assignments. During the second class period the students were briefed on playing the simulation game. In order to allow students to complete time plans and to provide guides in developing a time plan, the third class period was utilized for lecture-discussion of the tools of time management and student summary reports related to research on homemaker time use. Students completed playing the simulation game at the fourth class meeting on time management. The fifth class period concentrated on critiquing the game. Students shared their time plans for class analysis and each player evaluated his own time plan. The sixth, and final class period devoted to time management involved a

posttest evaluation. See Appendix B for an outline of learning activities used with the Time Management Game.

Summary

Chapter III included the objectives for the time management unit. After establishing objectives, the simulation game had to be devised.

The process involved in developing the simulation game was described. Developing the game involved creating the player types and imagining a way to apply the management process to a simulation game experience. In its development, the simulation game underwent trials prior to use in this study. The trials pointed up weaknesses which were used as bases to revise the game.

The simulation game, together with other learning experiences, was used to study time management. The unit consisted of six-50 minute class meetings.

CHAPTER IV

METHODOLOGY AND DESIGN

The purpose of the study, as indicated in Chapter I, was two-fold. One purpose was to develop a time management simulation game for use with college students and the other purpose was to determine whether the game was an effective tool to teach time management.

The design of the study, a description of the population, the instruments for data collection, and the statistical procedure for data analysis are discussed in this chapter.

Population

The population for this study consisted of college students enrolled in the beginning level Home Management theory course. The sample consisted of non-randomly selected Home Management--"Resource Management for the Individual and Family"--classes. The two classes were taught by this researcher during the Fall, 1971, semester. A total of 60 students were enrolled in the two classes. Fifty-eight students were women and two were men.

Design of the Study

A one-group pretest-posttest design was used to test the effectiveness of the simulation game as a method to teach time management to

college students.

Several criticisms of the one-group pretest-posttest design have been cited by education researchers. The primary criticisms center on loss of internal validity. Internal validity is the idea that the experimental treatment makes a difference in the specific idea under study. Campbell and Stanley identified the following weaknesses:

1. History. Between the pretest and posttest, changes other than the experimental treatment may affect results.
2. Maturation. Independent of specific external events, biological and psychological processes vary with the passage of time between the pretest and posttest.
3. Testing. The pretest itself may affect test results.
4. Instrumentation. Grading standards may shift from pretest to posttest.
5. Statistical Regression. Groups selected on the basis of their extreme scores may affect test results.[86]

Two factors identified by Campbell and Stanley as controlled are the following:

1. Selection. Biases resulting in differential selection of respondents for the comparison groups are eliminated.
2. Mortality. Experimental mortality or differential loss of respondents from the comparison groups is controlled.[87]

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[86]Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (New York, 1970), p. 7-11.

[87]Ibid.

In relation to the weaknesses of the one-group pretest-posttest design as given previously, attempts were made to hold the effects of the weaknesses to a minimum.

1. History. In the case of school environments, teachers can exercise considerable control over the planning and conduct of the learning environment.[88] In the case of this study relating to time management, the environmental influences such as "happenings on a college campus" are probably less than in other instances.
2. Maturation. The unit on time management is two weeks (six-50 minutes class meetings) in length. Though other factors such as student fatigue, hunger, and boredom could affect results, the short time length aids in keeping effects of maturation at a minimum.
3. Testing. The idea that pretesting affects posttest results has been questioned. Welch and Walberg reported they detected no significant pretest or sensitizing effects in their study of evaluation of a new physics courses.[89] The researcher took precautions to avoid specifically mentioning any test items during the study of the unit.
4. Instrumentation. An objective test was used to reduce subjectivity in grading the tests.

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[88]Fred P. Barnes, Research for the Practitioner in Education, NEA Department of Elementary School Principals, 1964.

[89]Wayne W. Welch and Herbert J. Walberg, "Pretest and Sensitization Effects in Curriculum Evaluation," American Educational Research Journal, VII No. 4 (November, 1970), pp. 605-614.

5. Statistical Regression. Though the samples were selected on a non-random basis, no provision was made to select students on the basis of prior achievement.

Data Collection

Student Achievement Test

An achievement test (Appendix C) was developed to determine the effectiveness of the Time Management Game as a teaching tool. The testing device was used as a pretest and posttest to the unit on time management. A comparison was made to identify differences, if any, between the pretest and posttest scores.

The test is objective. That is, the test can be scored in such a manner that subjective judgment is eliminated in deciding on the correctness of a pupil's answer. Further, the items in the test are of different difficulty levels and are arranged in the order of increasing difficulty. The test was termed untimed. Students could work as long as needed.

Items in the test were developed by the writer and items adapted from Vickers.[90] The major advisor and colleagues offered suggestions for the test items.

After the first draft of the test was developed, it was tested with a group of Home Management Resident students to determine clarity, difficulty, and discrimination of questions. The achievement test was revised before it was used in its final form for the simulation game.

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[90] Carole Vickers, "Levels of Selected Home Management Concepts Attained in Residence and Non-Residence Courses," (Ph.D. dissertation, Ohio State University, 1969.)

Student Rating Scale for the Time Management Game

The rating scale (Appendix D), adapted from Clements,[91] was constructed using a three point Likert-type model. In the Likert method, statements are never neutral toward the object in question but are favorable or unfavorable in varying degrees. The scale provides three ranges of responses--favorable, slightly favorable, and unfavorable.

For each statement in the rating scale, the student was to check (✓) the response that best described the way he felt about the Time Management Game. Numerical values assigned to the responses were : favorable--3, slightly favorable--2, and unfavorable--1. The responses to the statements were totaled. The highest score indicated the most favorable attitudes toward the game.

In addition to the rating scale, three openend questions were provided for students to express opinions about the simulation game.

Statistical Treatment of the Data[92]

A related t test was used to analyze the difference between each pair of pretest and posttest scores and to analyze the difference between the means of the two groups of scores. When a group is used as its own control, the first score is subtracted from the second and the first mean from the second.

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[91]Irene Zachry Clements, "The Development of a Simulation Game for Teaching a Unit on the Use of Consumer Credit," (Ph.D. dissertation, Oklahoma State University, 1970), pp. 160-162.

[92]John T. Roscoe, Fundamental Research Statistics (New York, 1969), pp. 171-172.

To test the difference between the means of two related samples, one must first estimate the standard error of difference between the means of the two related samples. Standard Error is estimated from:

$$S_{\bar{D}} = \sqrt{\frac{\Sigma d^2}{N(N-1)}}$$

where $\Sigma d^2 = \Sigma(D-\bar{D})^2 = \Sigma D^2 - \frac{(\Sigma D)^2}{N}$.

The symbol D represents the difference between a pair of scores, $\bar{D}$ represents the mean of the differences or $M_2 - M_1$, and N represents the number of pairs of scores. The degrees of freedom for this error term is N - 1. The t is calculated by:

$$t = \frac{\bar{D}}{S_{\bar{D}}}$$

where $\bar{D} = M_2 - M_1$ and $D = X_2 - X_1$.

The calculated t is compared to the tabled value at the .01 level of significance and with degrees of freedom equal to N - 1. If the calculated t equals or exceeds the tabled value, it is concluded that the observed difference between the two means is a significant one. If the value t is smaller than the tabled value, it is concluded that no significant difference between the means has been established.

Summary

Chapter IV included a description of the population, an explanation of the design of the study, methods for collecting data, and the statistical procedure used to analyze the data. In Chapter V the findings will be presented.

CHAPTER V

Presentation and Analysis of Data

Evaluation of the simulation game as a teaching tool was accomplished in two ways. One method of evaluating the game was through student opinion. The students involved in the study responded to questions on the "Student Rating Scale of the Time Management Game." The other device used to evaluate the game was an achievement test. The test was administered prior to and following the unit on time management.

Description of Students Involved in Time Management Game Study

Sixty students were involved in the study. Thirty-one were classified as sophomores, 23 as juniors, and six as seniors. The ages of the students ranged from 18 to 32. Two were 18 years old; 28 were 19 years old; 21 were 20 years old; four were 21 years old; four were 22 years old; and one was 32 years old. Fifty of the students were single; nine were married; and one was divorced. All but two of the students were majoring in Home Economics, as shown in Table V.

TABLE V

MAJOR AREA OF STUDY OF STUDENTS INVOLVED IN THE TIME MANAGEMENT GAME STUDY

Major	Number = 60
Home Economics	58*
Home Economics Education	17
Family Relations-Child Development	15
Clothing, Textiles, Merchandising	14
Housing and Interior Design	7
General	3
Extension	2
Food, Nutrition, Institutional Management	2
Home Economics Journalism	1
Elementary Education	1
Special Education	1

*Three students indicated double majors.

Student Opinions of the Time Management Game

A summary of student responses to the questions on the "Student Rating Scale of the Time Management Game" appears in Table VI. Student responses to the questions were assigned numerical values as follows: 3--strongly favorable opinion of the game, 2--moderately favorable opinion of the game, and 1--unfavorable opinion of the game. The numerical values allowed the investigator to arrive at a mean rating for the game and mean ratings for each item. Prior to analysis, it was decided that actual numerical values for each category would be: 1.0-1.5, unfavorable; 1.6-2.5, moderately favorable; and 2.6-3.0, strongly favorable.

TABLE VI

SUMMARY OF STUDENT OPINIONS REGARDING
THE TIME MANAGEMENT GAME

Opinion	Students	
	N = 60	% = 100
Strongly Favorable	40	67
Moderately Favorable	20	33
Unfavorable	0	0
Total	60	100

The mean response to the Time Management Game was 2.65 which indicates a strongly favorable opinion of the game. Note again, Table VI. Sixty-seven percent of the students indicated a strongly favorable opinion toward the game, 33% of the students indicated a moderately favorable opinion of the game, and none of the students viewed the game with disfavor.

The mean response to each item of the rating scale are given in Table VII. Students found the game easy to play and also felt that they enjoyed playing the game as is indicated by their ratings of 2.63 and 2.61, respectively. One student commented, "It was fun," while another said, "I really enjoyed playing it." Still another remarked, "It was a fun way of learning, one I'll probably remember a lot longer, too."

TABLE VII

SUMMARY OF STUDENT RESPONSES TO THE RATING SCALE ITEMS

Item	Mean Response
Was the game easy to play?	2.63
Did you enjoy playing the game?	2.61
Did the chance cards add interest to the game?	2.77
Were there sufficient directions for playing the game?	2.65
Since completing the unit on time management do you feel you are better able to manage time?	2.70
If given an opportunity to choose the teaching methods for a time management unit, would you choose the Time Management Game over the teacher-class, recitation-discussion method?	2.55
Total Items	6
Mean Response to Total Items	2.65

The students indicated that the chance cards added interest to the game by giving this question their highest rating, 2.77. One student made this statement: "Trying to alter the plan to fit the chance provided an element of surprise and made it a challenge." Another student said, "I thought that part [chances] was practical and true-to-life."

Students seemed to think that there were sufficient instructions for the game. This item was rated 2.65.

Students said they are better able to manage their time since completing the unit on time management as is indicated by their rating,

2.70. One student expressed the following: "I feel that it has gotten me to thinking about managing my time more. It has helped me for I'm in a situation where I need all the time management I can get--being married, going to school, and working 20 hours a week." Another student remarked that it was a "unique way to learn which is realistic and could be applied to [one's] own experience." Another comment was that, "I know how to plan my time better now."

The rating given to the item regarding use of the game as a teaching method preferable to the lecture-discussion technique was given a rating of 2.55. Several students indicated that use of the Time Management Game provided a practical application. "The fact that I got to participate actively taught me much more than if I'd simply listened to a lecture," was the opinion of one student. Another commented, "It was a different type of learning than just reading it from a book and taking a test type thing." The rating given by the students seems to indicate that the Time Management Game should be used in conjunction with other teaching methods. One student's view was, "Without the class discussion, the game would not have been so meaningful."

Analysis of Achievement Test Results

An achievement test was developed to determine the effectiveness of the Time Management Game. Items in the test were developed to evaluate knowledge of terminology and research related to time management, application of management concepts to the use of time, and analysis of a plan for time use. The test appears in Appendix C.

The achievement test was administered as a pretest and posttest to the unit on time management. Pretest and posttest scores were obtained

for 60 students.

A related t test was used to determine if the posttest scores were significantly better than the pretest scores. Table VIII shows student pretest and posttest scores. Also included in Table VIII is the difference between each student's pretest score and the difference squared, both of which are used in computation.

Of a possible score of 50, the score range for the pretest was 21-38 and the score range for the posttest was 25-42. The range for difference between pretest and posttest scores was -6 to +17. Ten of the 60 students did not do as well on the posttest as they did on the pretest. Ten of the 60 students improved from the pretest to the posttest by as much as 7 points or better.

TABLE VIII

SUMMARY OF PRETEST AND POSTTEST SCORES

Student	Pretest Score	Posttest Score	Difference	(Difference)^2
1	38	39	1	1
2	30	38	8	64
3	32	34	2	4
4	34	36	2	4
5	35	35	0	0
6	31	36	5	25
7	35	36	1	1
8	21	29	8	64
9	37	36	-1	1
10	34	29	-5	25
11	28	28	0	0
12	28	29	1	1
13	31	34	3	9
14	28	35	7	49
15	31	30	-1	1
16	36	34	-2	4
17	32	32	0	0
18	33	34	1	1
19	32	35	3	9
20	31	37	6	36
21	35	38	3	9
22	31	37	6	36
23	29	35	4	16
24	30	39	9	81
25	32	38	6	36
26	34	36	2	4
27	33	38	5	25
28	26	32	6	36
29	29	31	2	4
30	28	27	-1	1
31	31	34	3	9
32	30	32	2	4
33	29	31	2	4
34	33	39	6	36
35	31	35	4	16
36	33	35	2	4
37	27	38	11	121
38	29	32	3	9
39	29	32	3	9
40	35	40	5	25
41	33	38	5	25
42	37	35	-2	4
43	34	31	-3	9
44	29	30	1	1
45	36	40	4	16

TABLE VIII (Continued)

Student	Pretest Score	Posttest Score	Difference	$(\text{Difference})^2$
46	26	30	4	16
47	31	34	3	9
48	34	32	-2	4
49	32	37	5	25
50	28	34	6	36
51	23	28	5	25
52	21	29	8	64
53	24	41	17	289
54	28	35	7	49
55	33	42	9	81
56	22	28	6	36
57	31	25	-6	36
58	27	28	1	1
59	37	33	-4	16
60	22	35	13	169
			Σdifferences= 214	$\Sigma(\text{difference})^2$= 1850

The value of t was computed as given below:

$$t = \frac{\bar{D}}{S_{\bar{D}}}$$

$$\bar{D} = M_2 - M_1$$

$$= 34.22 - 30.65$$

$$= 3.58$$

$$\Sigma d^2 = \Sigma(D - \bar{D})^2 = \Sigma D^2 - \frac{(\Sigma D)^2}{N}$$

$$= 1850 - \frac{(214)^2}{60}$$

$$= 1850 - \frac{45796}{60}$$

$$= 1850 - 763.27$$

$$= 1086.73$$

$$S_{\bar{D}} = \sqrt{\frac{\Sigma d^2}{N(N-1)}}$$

$$= \sqrt{\frac{1086.73}{60(60-1)}}$$

$$= \sqrt{\frac{1086.73}{3540}}$$

$$= \sqrt{.307}$$

$$= .554$$

$$t = \frac{3.58}{.554}$$

$$= 6.46$$

The calculated t was compared to the tabled value at the .01 level of significance and the correct degrees of freedom. The calculated t

exceeded the tabled value, and it was concluded that the observed difference between the means of the pretest and posttest scores was a significant one.

Students were separated into three groups--lower 1/3, middle 1/3, and upper 1/3--according to their pretest scores. Each student in each of the pretest groups was then grouped into the lower 1/3, middle 1/3, and upper 1/3 according to their posttest scores as shown in Table IX. Fifteen (69%) of the 22 students who scored in the lower 1/3 on the pretest also scored in the lower 1/3 on the posttest. Six (35%) of the 17 students who scored in the middle 1/3 group on the pretest also scored in the middle 1/3 on the posttest. Twelve (57%) of the 21 students who scored in the upper 1/3 on the pretest also scored in the upper 1/3 on the posttest.

TABLE IX

THREE LEVELS OF STUDENT PERFORMANCE
ON PRETEST COMPARED TO POSTTEST
SCORE LEVELS

Pretest	Posttest							
	Lower 1/3		Middle 1/3		Upper 1/3		Total	
	No.	%	No.	%	No.	%	No.	%
Lower 1/3	15	69%	5	22%	2	9%	22	100%
Middle 1/3	4	24%	6	35%	7	41%	17	100%
Upper 1/3	3	14%	6	29%	12	57%	21	100%

Summary

Two instruments were developed to evaluate the Time Management Game. A rating scale was used to determine student opinions of the Time Management Game and an achievement test was used to determine student learning through use of the Time Management Game.

Chapter V has presented the findings of the study and Chapter VI will contain the implications of the data.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Considering that time for homemaking tasks has not decreased since 1920, that homemakers have difficulty finding time to do all that is necessary or desirable, and that homemakers, as a whole do not consciously plan for use of their time, it becomes apparent that the Home Economist must be able to apply and to teach the principles of time management. The purposes of this study were: 1) to develop a simulation game to teach time management to college students and 2) to test the effectiveness of the simulation game as a teaching device.

The study was limited to two beginning level Home Management theory classes enrolled at Oklahoma State University during the Fall semester of 1971. Sixty students participated in the study.

Realizing that it is difficult to provide actual experiences in application of management principles in arm-chair home management classes, a simulation game was developed. The game provides a life-like experience in management of time.

The study began by establishing behavioral objectives for the two week (six-fifty minute classes) unit on time management. After deciding that the objectives could be achieved through use of a time management simulation game, in combination with other classroom learning experiences, the game itself had to be developed.

The roles developed for the simulation game were confined to

those of homemakers, but a diversity of homemaker roles was attempted. Roles included homemakers of different ages, marital status, sex, socio-economics levels, locale, employment status, and physical capabilities. A player's homemaker role was determined by drawing a numbered disc. Each number corresponded to a different homemaker role.

The game itself involved applying the management process--planning, controlling, and evaluating--to the use of time. Planning included establishing values and goals and using them in creating a time plan for a specific homemaker role. Controlling was adjusting the plan to unexpected events called CHANCES. CHANCES were determined by a spinner on the playing board. Evaluating was judging the workability of the plan and estimating progress toward goal attainment.

In its development the game underwent several trials. An empirical tryout was held the Fall semester, 1970, and a field trial during the Spring semester, 1971. Each time the game was used with two sections of the Home Management 2113 classes. In addition, the game was used with a graduate level Home Management course during the Fall of 1970. Through these trials, the game was refined for use in the study.

Two instruments were used to obtain data regarding the effectiveness of the game as a teaching device. An achievement test was administered prior to and following the unit on time management. Test questions were objective. Items in the test were of varying difficulty levels and were arranged in order of increasing difficulty. The achievement test was used with a group outside the designated population to determine clarity, difficulty, and discrimination of questions. The test was revised before it was used in its final form to test the simulation game.

A related t test analysis of the achievement test scores revealed a significant difference at the .01 level indicating that the Time Management Game was a successful teaching method.

In addition to the achievement test, a rating scale to determine student opinions of the simulation game was used. The rating scale, using a three point Likert-type model, provided three ranges of responses--favorable, slightly favorable and unfavorable.

The data obtained from the rating scale revealed strongly favorable student opinions toward the simulation game. Of a possible 3.00 response, the mean response was 2.65. In response to the openend questions, one student said, "It gave a little spice to the study of time management. You really have to learn what you're supposed to in order to participate."

The fact that the game underwent a series of trials and revisions prior to its use in this study, no doubt, contributed to its success.

Recommendations to improve the game used in this study are as follows:

-Improve the game by clarifying and expanding directions for the game.

-Continue to have CHANCES, but improve the CHANCES by developing more interesting and challenging situations.

Other recommendations suggested by the study are:

-Develop additional roles indicative of the variety of life styles in our society. Examples of other roles are: the unwed mother, the ghetto homemaker, and the commune resident.

-Develop an instructor's manual by expanding the coordinator's responsibilities. The instructor's manual might include guidelines for

using the Time Management Game, a listing of resource materials on time management, and purposes and history of simulation gaming.

-Explore the possibility of developing and evaluating simulation games for use in other areas of Home Economics.

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APPENDIX A

THE TIME MANAGEMENT GAME

DIRECTIONS FOR TIME MANAGEMENT GAME:

Note: The purpose of the game is to provide an experience in time management. An assumption is made that players comprehend basic home management concepts prior to playing the game.

1. Enclosed with the game are numbered disks. Numbers on the disks correspond to roles. Each player selects a numbered disk to determine the role he will play. To decide who draws first, the coordinator spins the spinner. The person to whom the spinner points, draws a disk. Continuing clockwise, each player draws a disk.

2. The coordinator gives each player: 1) the role description form corresponding to the number drawn; 2) daily activity planning forms for the rounds of play (one round is one day); 3) the information form including a list of values typical in our society, a list of household tasks, and a list of completed tasks to purchase; and 4) the money allowance for purchasing time.

3. Study the description of the role you will play. After studying the role, decide on 5 values you feel are important to the person you are playing. The list of values is for ideas. Place the 5 values, in descending order, on the role description form. Keep in mind what you decide is important when planning daily activities.

4. Decide on the things--household tasks, family goals, special deeds, et cetera--you wish to accomplish during the days of play. Be specific. Use the list of household tasks to decide on homemaking goals. Record all goals to work toward on the space provided on the role description form. Refer to your list of things to accomplish when planning daily activities.

5. Plan a tentative schedule for each day. Begin and end the day at 12 midnight. List all planned activities with a time allowance.
   Example: Make bed 7:15-7:20

6. Check plans with coordinator.

7. Spin to draw a chance. The color on which the spinner lands is the color of the chance card to be used. The chance applies only to one round and each chance can be used only once. For each round of play, draw a new and different chance.

8. Record the chance on the daily activity planning form and decide on possible alternatives. List the possible alternatives in the space provided.

9. Adjust the day's plan according to the chance. Adjustments in activities and time allowance can be made by eliminating activities and/or dovetailing activities and/or purchasing completed tasks. (To purchase tasks, see listing of costs and pay the coordinator.)

Record all changes in plans in the actual activities column.

10. Repeat steps 7, 8, and 9 for each additional round.

1

ROLE DESCRIPTION FORM

Ella Mayes...age 32...divorced...three children...7 and 5 years old girls and 3 year old boy...full-time homemaker...lives in substandard housing in city...welfare recipient...health is fair.

Money Allowance---None

What is important to Ella Mayes:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

2

ROLE DESCRIPTION FORM

June Mason...age 45...married 25 years to a farmer...three children--24 year old boy who is married and has a son, 20 year old boy in college, and 16 year old girl in high school...employed half-time as a sales clerk...lives on farm in own home...health is good.

Money Allowance---$30.00

What is important to June Mason:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

3

ROLE DESCRIPTION FORM

Molly Morse...age 58...married 35 years to a dentist...all children have left nest--girl 29 and boy 23...3 grandchildren...full-time homemaker...lives in home in suburb...health is good.

Money Allowance---$30.00

What is important to Molly Morse:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

4

ROLE DESCRIPTION FORM

Lyn Carlyle...age 22...single...works full-time as a secretary for an insurance firm...rents an apartment in city...health is excellent.

Money Allowance---$20.00

What is important to Lyn Carlyle:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

5

ROLE DESCRIPTION FORM

Ruth Turner...age 34...widowed...works full-time as a registered nurse...two children--12 year old boy and 9 year old girl...lives in home in subdivision...health is excellent.

Money Allowance---$25.00

What is important to Ruth Turner:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

6

ROLE DESCRIPTION FORM

Tom Draper...age 27...single...works full-time as a carpenter...rents an apartment in town...health is excellent.

Money Allowance---$20.00

What is important to Tom Draper:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

7

ROLE DESCRIPTION FORM

Mary Hafeman...age 30...married 4½ years to a policeman...three children--all girls ages 3, 1½, and ½...full-time homemaker...lives in a mobile home in court...health is excellent.

Money Allowance---$20.00

What is important to Mary Hafeman:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

8

ROLE DESCRIPTION FORM

Cecile Borden...age 66...widowed...retired school teacher...a son with 3 children...lives in duplex in town...good health.

Money Allowance---$20.00

What is important to Cecile Borden:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

9

ROLE DESCRIPTION FORM

Dawn Harris...age 20...college student...married 1 year to a college student...no children...lives in married student housing...health is excellent.

Money Allowance---$10.00

What is important to Dawn Harris:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

10

ROLE DESCRIPTION FORM

Susan James...age 38...married 10 years to an electrical engineer... daughter is 8 years old...full-time homemaker...lives in condominium in suburb...confined to wheelchair, otherwise health is good.

Money Allowance---$35.00

What is important to Susan James:

1.

2.

3.

4.

5.

During the rounds of play, I hope to accomplish:

VALUES TYPICAL IN OUR SOCIETY

Leisure	Wealth	Education
Appearance	Pleasure	Comfort
Economy	Durability	Efficiency
Maintenance	Concern for others	Safety
Family Centrism	Style Preference	Friendship
Hobbies	Status	Location
Health	Aesthetics	Privacy
Challenge	Affection	Freedom
Beauty	Prestige	Cleanliness
Religion	Recognition	Physical convenience
Cooperation	Helpfulness	Praising
Security	Planning	Workmanship
Protection	Orderliness	Savings
New experiences	Develop as a person	Influence

HOUSEHOLD TASK LIST

Preparation and Clean-up of Food

planning meals
preparing meals
serving meals
packing lunches
baking cookies, cakes, bread
special cooking and baking
preparing special meals
food preservation
clearing table
washing dishes
putting away clean dishes
storing

Care of Home

making beds
picking up
dusting
sweeping
vacuuming
making repairs
mopping floors
washing floors
washing walls
washing windows
clean tub, sink, and toilet bowl
painting

Care of Clothing

collecting
sorting
pretreating
washing
rinsing
drying (hanging or dryer)
starching
folding
storing
ironing
pressing
mending
sewing
storing seasonal clothes

Care of Family

Caring for baby
  feeding
  bathing
  dressing
  playing with
Caring for children
  playing with
  sharing
  transportation
Caring for spouse
  visiting with
  sharing with
Caring for invalids
  feeding
  visiting with
  writing letters for
  dressing and bathing
Care of pets

Marketing, Management, and Records

shopping or ordering
  food
  clothing
  furnishings
  car care
storing purchased articles
going to bank
keeping accounts
paying bills
planning for activities

DAILY ACTIVITY PLANNING FORM

FOR_____

Planned Activities	Time Span	Chance influences plan	Actual Activities	Time Span
		copy Chance drawn: List possible alternatives to plan because of chance:		

CHANCES

Role 1

While bowling with neighbor lady, meet a fellow who asks her to stay on for mixed bowling. Lose time from 6:00 to 9:00 p.m.

You are enrolled for an evening class to get training for a job. Lose time from 6:30 to 8:30.

Do clothing repairs for children's clothing. The clothes are needed for school. Lose time from 6:30 to 9:00 in the evening.

Role 2

Do not feel well. Stay in bed all morning until 11:30.

Son brings laundry home from college. Lose 2½ hours from 8:30 to 11:00 in the morning.

Visit friend in hospital. Lose 2 hours from 3:00 to 5:00 in the afternoon.

Role 3

Become interested in TV program. Lose time from 3:00 to 4:00 in the afternoon.

Fall and sprain ankle. Take 1½ hours to see doctor from 1:30 to 3:00. Must stay off ankle for remainder of day.

Work at voter registration. Lose 4 hours from 8:00 to 12:00 in the morning.

Role 4

Reads instead of working. Lose 1 hour from 6:00 to 7:00 in the evening.

Boss asks you to come in to finish important contract. Lose 2 hours from 6:00 to 8:00 p.m.

Give shower for friend. Lose 4 hours from 6:00 to 10:00 p.m.

Role 5

Called to work early. Lose 2 hours from 6:00 to 8:00 a.m.

Clean garage. Lose time from 6:00 to 7:30 in the evening.

Children wash dishes. Gain time allowed for clean-up of evening meal.

Role 6

Card party tonight. Lose 3 hours from 7:30 to 10:30 p.m.

Job out of town. Allow extra ½ hour in the morning and evening for travel time.

Weather makes work impossible. Gain whatever time was allowed to working as a carpenter.

Role 7

Boss over for dinner. Lose 2 hours from 4:30 to 6:30 in the evening.

Visit with neighbors. Lose time from 2:15 to 3:15 in the afternoon.

Children are sick with flu. Lose time from 8:00 to 8:30 a.m., 11:00 to 11:30 a.m., and 4:00 to 4:30 p.m. giving special care.

Role 8

Volunteer for Red Cross. Lose 2 hours from 9:00 to 11:00 a.m.

Go on pleasure shopping trip with friends. Lose time from 10:00 a.m. to 3:00 p.m.

Read and watch TV all morning. Lose time from 9:00 to 11:30 a.m.

Role 9

Friends over for a visit. Lose time from 7:00 to 9:30 p.m.

Test tomorrow. Lose 2 hours studying from 8:00 to 10:00 p.m.

Husband prepared dinner. Gain time used for preparation of dinner.

Role 10

Want to iron and someone has put board away. Lose ½ hour getting out equipment from 10:00 to 10:30. Allow extra time to iron, too.

Preparing husband's favorite dessert as surprise. Lose 2 hours from 2:30 to 4:30 p.m.

Have pains. Lose 2 hours resting from 1:30 to 3:30 p.m.

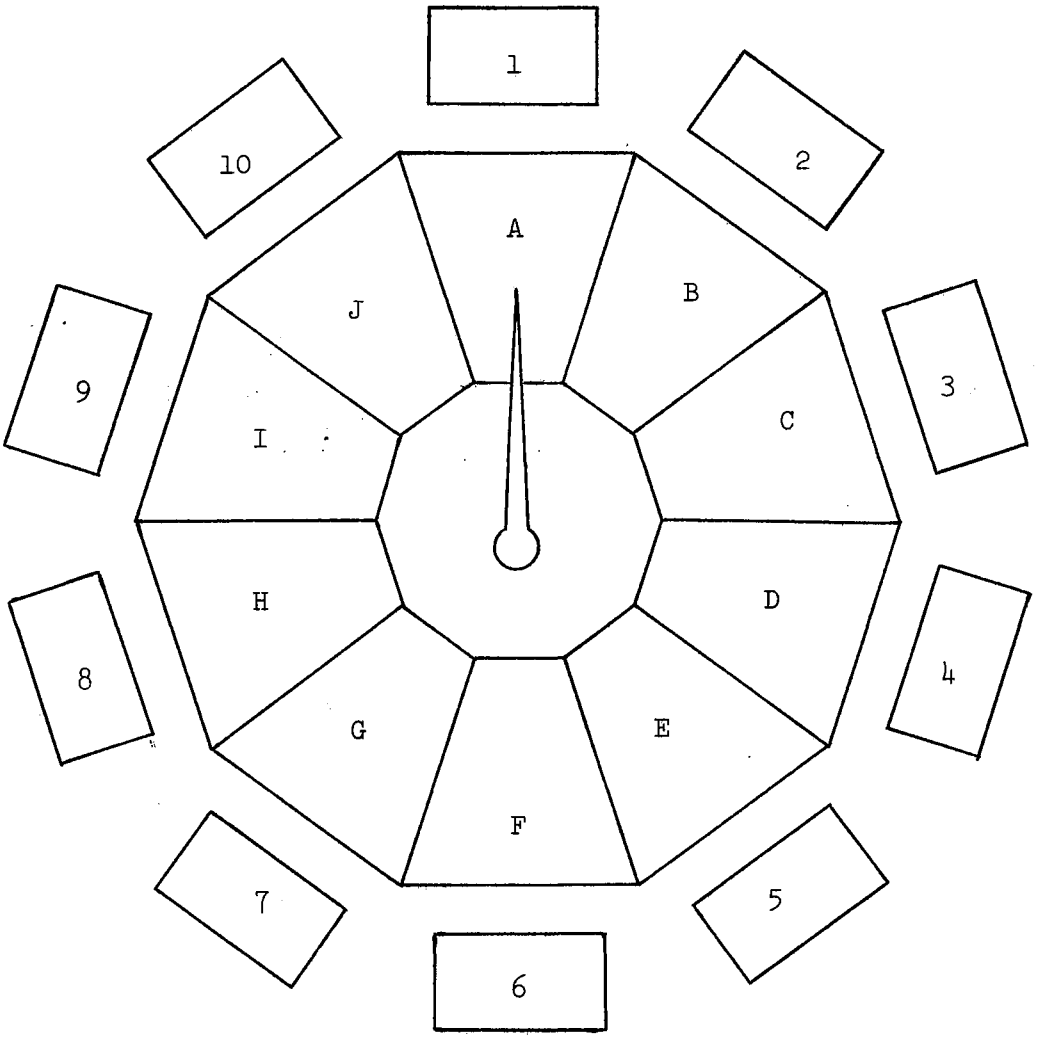
PURCHASE LIST OF HOUSEHOLD TASKS

To purchase a task, pay the coordinator the cost of the completed task and record task and cost on Daily Activity Planning Form.

Task to be purchased	Cost
Heat and serve meals	$1/meal/person
Ready to eat meals	$2/meal/person
Eat out:	
Breakfast	$1/meal/person
Lunch	$2/meal/person
Dinner	$3/meal/person
Ready made cake, cookies, bread	$1/day/person
Maid service	$2/hour
Hire repairman	$5/hour
Hire yardworker	$3/hour
Coin-op laundry	$1/3 loads
Laundry service	$2/load
Hire babysitter	$1/hour
Hire nursing care	$3/hour
Hire bookkeeper	$5/hour
Have deliveries instead of shopping	$1/delivery

For tasks not listed, bargain with coordinator.

GAME BOARD



Code: A-Red F-Light Blue
B-White G-Purple
C-Orange H-Gray
D-Blue I-Brown
E-Yellow J-Green

Numbers 1-10 indicate roles

COORDINATOR'S RESPONSIBILITIES FOR TIME MANAGEMENT GAME:

1. The purpose of the game is to provide an experience in time management. An assumption is made that players comprehend basic home management concepts prior to playing the game.

2. Read references to provide background on time management. See the enclosed bibliographical listing.

3. Before the class meeting, read all game directions to be completely familiar with procedures.

4. If necessary, prepare physical facilities of the classroom for the game.

5. Handout directions for the game. Give an overview of the game and explain the directions.

6. If desired, divide the class into groups. A "player" can be one, two, or more persons. Group decision-making can be incorporated into the game by having more than one person play a particular role.

7. You may find it advantageous to control the roles used. If more than one player has a particular role, after the game players can compare results and note differences. On the other hand, you may find it advantageous to use different roles and draw on the variety of situations for discussion. In any case, select the numbered disks for the roles you wish to use before the group meeting.

8. Have players congregate around the game board. Spin the spinner. The person to whom the spinner points draws a numbered disk. Continuing clockwise, each player draws a disk.

9. Collect numbered disks and distribute corresponding role forms, daily activity planning forms (one for each day of play), and the money allowance. The information forms can be used in the classroom.

10. Assist players in completing daily activity plans. The completion of the planned activities may be an assignment that is completed outside of class.

11. Check plans to see that tentative schedules are complete.

12. Go through an example of a chance card drawing to assist players in determining procedures to follow.

13. Direct students in round(s) of play.

14. Sell completed tasks to players. Collect money and instruct players to record purchases on daily activity forms.

15. After all rounds of play have been completed, direct discussion to bring together key ideas of time management.

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Nickell, Paulena and Jean Muir Dorsey. Management in Family Living. New York: John Wiley and Sons, Inc., 1967.

Steidl, Rose E. "Use of Time During Family Meal Preparation and Clean-up." Journal of Home Economics, L (June, 1958), 447-450.

Walker, Kathryn E. "Homemaking Still Takes Time." Journal of Home Economics, LXI (October, 1969), 621-624.

Walker, Kathryn E. "Time Use Patterns for Household Work Related to Homemaker's Employment." (speech at New York State College of Human Ecology of February 18, 1970).

Weigand, Elizabeth. Use of Time by Full-Time and Part-Time Homemakers in Relation to Home Management. Memoir 330 Cornell University Agriculture Bulletin, July, 1954.

APPENDIX B

STUDENT LEARNING ACTIVITIES USED WITH THE TIME MANAGEMENT GAME

LEARNING ACTIVITIES USED WITH THE

TIME MANAGEMENT GAME

I. Take pretest on time management.

II. Read Chapter 5, "Time Management," from Management in Family Living by Paulena Nickell and Jean Muir Dorsey.

III. Listen to or give a summary report on selected research studies.

IV. Listen to lecture, participate in discussion, and view overlays on tools of time management.

V. Take posttest on time management.

APPENDIX C

STUDENT ACHIEVEMENT TEST

DIRECTIONS

Check to see that you have a test booklet and an answer sheet. Record all answers on the answer sheet. Do not write on the test booklet. Do any scratch work on the reverse side on the answer sheet. Mark only one answer for each question.

This is not a timed test, but you will probably finish within the class period. You may work as long as your instructor permits.

When you have finished the test, check to be sure that you have your name on the answer sheet and that you have answered all the questions. Return the test booklet and answer sheet to the instructor.

Each question has only <u>one</u> right answer. The test is composed of 50 questions and each question is weighted the same. That is, each question is worth one point and the maximum possible raw score is 50.

Table 1. Average hours per day used for household work by wives and husbands, by type of activity and employment of wife, Syracuse, 1967-68.

Household work activity and family member	All families	Employment of wife per week			
		None	1 to 14 hours	15 to 19 hours	30 or more hours
	Hours	Hours	Hours	Hours	Hours
All household work:					
Wife	7.3	8.1	7.3	6.3	4.8
Husband	1.6	1.6	1.7	1.6	1.6
Food preparation, cleanup:					
Wife	2.1	2.3	2.2	1.9	1.5
Husband	.15	.1	.1	.2	.2
House care:					
Wife	1.5	1.6	1.4	1.3	1.1
Husband	.6	.6	.7	.6	.6
Clothing care:					
Wife	1.2	1.3	1.3	1.1	.8
Husband	(1/)	(1/)	(1/)	(1/)	(1/)
Family care:					
Wife	1.6	1.9	1.4	1.1	.6
Husband	.4	.4	.3	.4	.3
Marketing, Management, record-keeping:					
Wife	1.0	1.0	1.0	.9	.8
Husband	.4	.4	.4	.4	.4
	No.	No.	No.	No.	No.
Families in sample	1,296	859	120	111	206

1/ Less than 0.1 hour per day.

Directions:
Study the Table as taken from Kathryn E. Walker's article, "Time Used by Husbands for Household Work," published in the June, 1970, Family Economics Review. From the data, decide whether each statement below is true or false. Mark X on the answer sheet for true statements and 0 for false statements on the answer sheet.

1. As homemakers' hours of paid employment increases, time contributed by husbands to household work increases greatly.

2. Time per day for household work by homemakers decreased considerably as their time in paid employment increased.

3. Husbands contribute about the same amount of time to all household work, on the average, when wives were full-time homemakers as when they were gainfully employed either part-time or 30 or more hours.

4. In relation to food preparation, husbands' time did not increase as wives time in paid employment increased.

5. Wives' time in food preparation decreased as time in paid employment increased.

6. Husbands spent more time on family care activities than any other type of household work.

7. Homemakers received the least amount of help from their husbands in the area of clothing care.

8. Of the nearly 1300 families in the study, most of the wives spent approximately 5 to 8 hours per day in household work.

Directions:
Below are phrases that define or describe important concepts of Home Management. Place the appropriate letter of the KEY on the blank corresponding to the item number on the answer sheet.

KEY: A. Goals
B. Plans
C. Resources
D. Standards
E. Values

9. Using money to hire a helper instead of taking time to do the work yourself.

10. Set of measures stemming from value patterns.

11. Future oriented action to achieve ends desired by an individual or family.

12. Govern our choice of methods, modes, or goals.

13. Effective use depends upon realistic assessment.

14. Achievement and changes in stage of family life cycle result in formulation of additions.

15. Mental picture of what is considered essential and necessary to make life tolerable.

16. Influences by results of previous decision of the family.

17. Products of interaction between an individual and some object or situation in his environment.

18. Allocation affects the ends achieved.

19. Must provide flexibility in the organizational pattern for completion.

20. Definite time to do tasks shape daily and weekly time and activity patterns.

21. Hierarchy of motivational forces determine precedence if conflict develops.

22. Decide which cleaning tasks family members will do to have the house the way they want it.

23. Desire to improve housekeeping skills to release time for community activities.

24. Decide whether to do the laundry or send out the laundry.

25. Basis of sound planning that serves as a guide in deciding what work must be done and how it must be accomplished.

26. Restrictions one accepts in working toward a goal.

Directions:
In the past fifty years, the basic household activities of homemakers have not changed greatly in relation to categories and total time spent. However, research studies show there has been considerable change in the amount of time spent on specific household task categories.

Place the letter of the KEY (Household Task Group) on the blank corresponding to the item number description.

KEY: HOUSEHOLD TASK GROUPS
- A. Food Activities
- B. Care of House
- C. Care of Clothing
- D. Care of Family Members
- E. Marketing and Records

27. Activity grouping for which time demands are the greatest.

28. Activity grouping for which time demands have decreased the most.

29. Activity grouping for which time demands have decreased, reflecting an increase in time allowed for marketing and records.

30. Activity grouping for which homemakers spend the least amount of time.

31. Activity grouping for which city homemakers spend considerably more time than farm homemakers.

Fourteen-year-old Mary Lou is preparing breakfast for her family on Easter. She wants everything to be just right. For the special meal she has decided on the menu given below. Breakfast is to be served at 8:00 a.m.

Menu

Grapefruit Sections
Broiled Ham Slices
Waffles
Strawberry Sauce
Milk Coffee

Directions:
Match from the list below the time period that would be the best for each task listed. Place the letter of the time period on the blank by the appropriate item number on the answer sheet.

Task	Time Period
32. Prepare strawberry sauce	A. Evening before (4 tasks)
33. Bake waffles	B. 7:15-7:45 (3 tasks)
34. Slice and section grapefruit	C. Last 15 minutes before serving (1 task)
35. Place ham under broiler	
36. Mix waffle batter	
37. Set table	
38. Start coffee	
39. Slice ham	

40.
Directions:
Kay Dower has taken her first job. She wants to get the most from her money and still have enough time to enjoy herself. Study the chart below and decide which of the combinations will give Kay the least cost combinations of the resources time and money. Write the letter on the blank provided on the answer sheet.

	Weekly Dollar Cost	Hourly Cost
Living Accommodations:		
rent apartment alone	$30.00	10
share apartment	18.00	8
(Time is for housekeeping)		
Transportation:		
drive	5.00	2
car pool	2.50	3
bus	1.25	4
Eating:		
pack lunch	2.50	1½
eat out	5.00	0
Laundry:		
send out	4.00	½
do herself	1.00	2

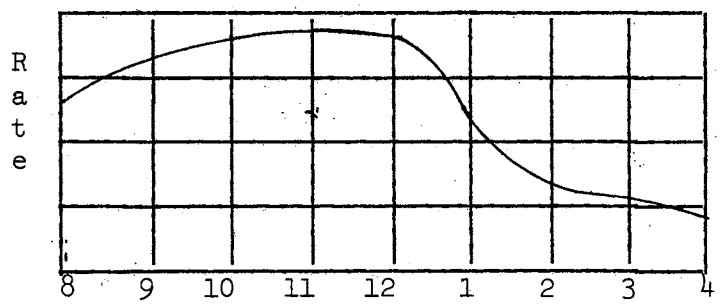
a. share apartment, join car pool, pack lunch, send out laundry

b. rent apartment alone, take bus, pack lunch, do own laundry

c. share apartment, drive to work, eat out, do own laundry

d. rent apartment alone, take bus, eat out, send out laundry

e. share apartment, join car pool, eat out, do own laundry



Directions:
A homemaker's work curve is shown above. For each of the following questions select the order of the tasks that will enable her to make the best use of her productivity rate. Record the letter on the space provided on the answer sheet.

41.
a. mending, cleaning cupboards, baking

b. baking, mending, cleaning cupboards

c. cleaning cupboards, baking, mending

d. baking, cleaning cupboards, mending

42.

a. grocery shopping, writing letters, dusting furniture

b. dusting furniture, grocery shopping, writing letters

c. writing letters, grocery shopping, dusting furniture

d. dusting furniture, writing letters, grocery shopping

Jane Harvard is a 26 year old journalist who has a busy week and does not have time for household work until the weekend. An example of Jane's typical Saturday morning is given below.

Jane Harvard's Saturday Morning

get up	8:00
plug in coffee	8:00-8:03
personal care and grooming	8:03-8:30
serve breakfast	8:30-8:35
Orange Juice	
Ready-to-eat Cereal	
Milk	
Coffee	
eat breakfast	8:35-8:55
clean-up breakfast dishes	8:55-9:15
pack dirty clothing	9:15-9:20
(Jane sorts clothes as they become dirty.)	
travel to laundry	9:20-9:25
wash and dry clothes	9:25-10:45
(Jane reads while clothes wash and dry.)	
travel to grocery	10:45-10:50
shop for groceries	10:50-11:30
travel home	11:30-11:35
carry in laundry and groceries	11:35-11:45
put TV dinner into oven	11:45-11:46
put away groceries	11:46-12:15
eat lunch	12:15-12:30

Directions:
Study Jane's schedule carefully and decide which of the following have been incorporated into her time plan. Mark X on the answer sheet for those that apply to Jane's plan and 0 on the answer sheet for those that do not apply to Jane's plan.

43. allowance for reasonable work curve

44. alternate work and rest periods

45. attempts to eliminate peak loads

46. dovetailing

47. flexibility

48. sequence suited to tasks

49. substitution of resources

50. sufficient time allowance for tasks

Name_____

ANSWER SHEET

1._____	26._____
2._____	27._____
3._____	28._____
4._____	29._____
5._____	30._____
6._____	31._____
7._____	32._____
8._____	33._____
9._____	34._____
10._____	35._____
11._____	36._____
12._____	37._____
13._____	38._____
14._____	39._____
15._____	40._____
16._____	41._____
17._____	42._____
18._____	43._____
19._____	44._____
20._____	45._____
21._____	46._____
22._____	47._____
23._____	48._____
24._____	49._____
25._____	50._____

TEST KEY

1. O
2. X
3. X
4. O
5. X
6. O
7. X
8. X
9. c
10. d
11. b
12. e
13. c
14. a
15. d
16. b
17. e
18. c
19. b
20. b
21. e
22. b
23. a
24. b
25. a
26. d
27. a
28. b
29. a
30. e
31. d
32. a
33. b
34. c
35. b
36. a
37. a
38. b
39. a
40. e
41. c
42. b
43. O
44. O
45. X
46. X
47. O
48. X
49. X
50. X

APPENDIX D

STUDENT RATING SCALE
FOR
TIME MANAGEMENT GAME

STUDENT RATING SCALE
FOR
TIME MANAGEMENT GAME

Name _____ Date _____

Classification:
___ Freshman
___ Sophomore
___ Junior
___ Senior

Major:_____

Age:_____

Marital Status:
___ Single
___ Married
___ Divorced
___ Widowed

Directions:

This is not a test, but a means of gathering information about the Time Management Game you have used. The answers you give will have no effect on your grade.

The purpose of the rating scale is to help the developer of the Time Management Game to:

1. Determine areas of the game that need clarification.
2. Determine whether or not the Time Management Game adds meaning to the study of time management.
3. Decide if the Time Management Game is a practical way to study time management.

Read each question and then place a check mark (✓) in the space before the statement that best describes the way you feel about the Time Management Game.

1. Was the game easy to play?

_____ Yes, the game was easy to play.

_____ Sometimes, but it was sometimes tedious.

_____ No, the game was hard to play.

2. Did you enjoy playing the game?

_____ Yes, the game was fun to play.

_____ Sometimes, but there were times when it was boring.

_____ No, it was too much trouble to play.

3. Did the chance cards add interest to the game?

_____ Yes, not knowing what to expect added interest to the game.

_____ Sometimes the chances added interest.

_____ No, the chances added nothing.

4. Were there sufficient directions for playing the game?

_____ Yes, the amount of directions was about right.

_____ Sometimes a few more directions would have helped.

_____ No, I was often confused about what I was supposed to be doing.

5. Since completing the unit on time management do you feel you are better able to manage time?

_____ Yes, I learned enough to improve my management of time.

_____ Sometimes, but I think another way to study time management would be more helpful.

_____ No, I still am not able to manage my time use.

6. If given an opportunity to choose the teaching methods for a time management unit, would you choose the Time Management Game over the teacher-class, recitation-discussion method.

_____ Yes, I think the game helped me learn more about time management than the other method would have.

_____ I am not sure.

_____ No, I could have learned more if the other teaching method had been used.

7. The part I like best about the game was:

8. The part I liked least about the game was:

9. Other comments I have about the game are:

APPENDIX E

SUMMARY OF STUDENT ACHIEVEMENT TEST SCORES AND OPINIONS OF THE TIME MANAGEMENT GAME

SUMMARY OF STUDENT ACHIEVEMENT TEST SCORES
AND OPINIONS OF THE TIME MANAGEMENT GAME

Student	Personal Information				Test Scores		Opinions		
	Classification	Marital Status	Age	Major	Pretest	Posttest	Strongly Favorable	Moderately Favorable	Unfavorable
1	Jr	S	19	1a	38	39	3.0		
2	Jr	S	20	1c	30	38		2.5	
3	So	M	19	1a	32	34		2.2	
4	So	S	19	1a	34	36	2.8		
5	So	S	19	1b	35	35	3.0		
6	Jr	M	20	1e	31	36	2.8		
7	Sr	S	22	1f	35	36		2.5	
8	So	S	19	1b	21	29		2.2	
9	Jr	S	20	1a & 1h	37	36		2.5	
10	Sr	S	22	1c	34	29	2.6		
11	Jr	S	20	1a	28	38	3.0		
12	Sr	S	21	1c	28	29	2.8		
13	So	S	20	1c	31	34	2.8		
14	So	S	19	1d	28	35	2.6		
15	Jr	M	20	1c	31	30	2.8		
16	Jr	S	20	1c	36	34	2.8		
17	So	S	19	1a	32	32		2.5	
18	Jr	M	20	1a	33	34		2.3	
19	So	S	19	1c	32	35	2.6		
20	Sr	S	21	1a	31	37		2.5	
21	So	S	18	1b	35	38	2.8		
22	So	S	19	1e	31	37		2.3	
23	Jr	M	20	1c	29	35		2.5	
24	So	S	19	1d	30	39	2.6		
25	Jr	M	20	1c	32	38	3.0		
26	Jr	S	20	1b	34	36	2.6		
27	So	S	19	1b	33	38		2.2	
28	So	S	18	1a	26	32		2.5	
29	So	S	20	1e	29	31	2.8		
30	Jr	S	22	1d	28	27	2.6		
31	So	M	19	1d	31	34	2.8		
32	So	M	19	1b	30	32		2.5	
33	Sr	S	21	1d	29	31		2.3	
34	Jr	S	20	1a & 1c	33	39	2.6		

SUMMARY (continued)

Student	Personal Information				Test Scores		Opinions		
	Classification	Marital Status	Age	Major	Pretest	Posttest	Strongly Favorable	Moderately Favorable	Unfavorable
35	Jr	S	21	1b	31	35	2.6		
36	So	S	19	1a & 1c	33	34		2.5	
37	So	S	19	1a	27	38	2.6		
38	So	S	19	1a	29	37	2.8		
39	Jr	S	20	1g	29	32	2.6		
40	Jr	S	20	1a	35	40	2.8		
41	Jr	M	20	1a	33	38	2.8		
42	So	D	32	1g	37	35	2.6		
43	So	S	19	1b	34	31	2.8		
44	Jr	S	20	1a	29	30	2.8		
45	So	S	19	1b	36	40	3.0		
46	So	S	19	1b	26	30		2.0	
47	So	S	19	3	31	34	2.6		
48	Sr	S	22	1d	34	32		2.5	
49	Jr	S	19	1f	32	37	2.6		
50	Jr	S	20	1a	28	34	3.0		
51	Jr	S	20	1d	23	28	2.6		
52	So	S	19	1b	21	29	3.0		
53	So	S	19	1b	24	41		1.6	
54	So	S	19	1b	28	35	2.8		
55	Jr	S	20	1c	33	42		2.5	
56	So	S	19	2	22	28	2.8		
57	So	S	19	1b	31	25	2.8		
58	So	S	19	1b	27	28		2.2	
59	So	S	19	1c	37	33	2.8		
60	Jr	S	20	1c	22	35	2.8		

Code for Major:

Home Economics	1	Home Economics	1
HEED	a	FNIA	f
FRCD	b	Extension	g
CTM	c	H.E. Journalism	h
HID	d	Elementary Education	2
General	e	Special Education	3

VITA

Joan Elina LeFebvre

Candidate for the Degree of

Master of Science

Thesis: THE EFFECTIVENESS OF A SIMULATION GAME AS A METHOD TO TEACH TIME MANAGEMENT TO COLLEGE STUDENTS

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Professional Organizations: American Home Economics Association, Oklahoma Home Economics Association, Phi Upsilon Omicron, Omicron Nu, American Council on Consumer Interests.