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ABSTRACT

PLANNED AGE (Planned Alternatives for Gerontological Environments) is a consumer/advocate-oriented design simulation package that provides: (a) a medium for user-planner interaction in the design of living and service environments for the aged; (b) an educational, planning, design, and evaluation tool that can be used by the elderly, their families, and various professionals in the design of environment-behavior systems; (c) a means for comparing the benefits and costs of alternative living settings for the elderly; and (d) information and technical assistance that could be used by architects, agencies, and social scientists in the future design of facilities for the aged. The simulation strategy consists of three exercises: (1) a needs assessment/matching game in which the participant determines the social, environmental, and functional needs of the aged consumer and then matches him/her to an appropriate setting; (2) an environment design component where the participant is asked to allocate limited resources among lifestyle factors such as food, medical care, building features, and programmed activities; design optimal settings in accordance with this lifestyle data; and evaluate the use of these designed environments; (3) a community planning simulation which examines the process by which community-specific strategies for elderly housing are implemented. (Author)

OPTIMAL LIVING ENVIRONMENTS FOR THE ELDERLY: A DESIGN SIMULATION APPROACH

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ABSTRACT

PLANNED AGE (Planned Alternatives for Gerontological Environments) is a consumer/advocate-oriented design simulation package that provides: a) a medium for user-planner interaction in the design of living and service environments for the aged; b) an educational, planning, design, and evaluation tool that can be readily used by the elderly, their families, and various professionals in the design of environment-behavior systems; c) a means for comparing the benefits and costs of alternative living settings for the elderly; and d) information and technical assistance that could be used by architects, agencies, and social scientists in the future design of facilities for the aged.

The simulation strategy consists of three exercises: a) a needs assessment/matching game in which the participant determines the social, environmental, and functional needs of the aged consumer and then matches him/her to an appropriate setting; b) an environment design component where the participant is asked to 1) allocate limited resources among lifestyle factors such as food, medical care, building features, and programmed activities, 2) design optimal settings in accordance with this lifestyle data, and 3) evaluate the use of these designed environments; c) a community planning simulation which examines the process by which community-specific strategies for elderly housing are implemented.

PLANNED AGE research was conducted in two phases. In the development and calibration phase six potential user populations were surveyed (the aged, their families, design professionals, and local, state, and federal officials) on dimensions of housing issues, resource allocation, and optimal solutions to environmental problems. In the evaluation phase 1) playability of the game, 2) its impact on knowledge about and attitudes toward the aged and awareness of environmental options, and 3) the value of information generated in the simulation were examined. The interactive process of citizen participation in planning and design decision-making was viewed as the most significant outcome of the simulation.

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The initial development of PLANNED AGE was made possible by a grant from the Pennsylvania State University Gerontology Center.

I. The Problem

From a design perspective, the elderly are a neglected population, neglected because 1) their opinions as to their environmental needs (e.g., housing, supportive services, and quality of life) are seldom solicited, and 2) they are presented with insufficient information on residential options to facilitate informed decision-making. Service providers have become more aware of the necessity for interdisciplinary and intergenerational communication because of a three-fold impetus: 1) the movement within community development for citizen participation in design, evaluation, and policy planning; 2) the federally imposed accountability of service agencies to the service consumers; and 3) the growing interest in consumer protection. Although an interest in planning cooperation is growing, techniques which allow an opportunity for mutual exploration of decision-making strategies are lacking. The simulation strategy discussed here, by providing the basis for this necessary dialogue, could serve as a viable link between the elderly, their families, and relevant service and planning professionals.

II. Rationale

Conventional design methodologies have been unable to satisfy the needs of multiple clients in complex environmental settings. One technique which has been developed to involve users in planning problems is design simulation (Summers, 1975). SITE PLANNING GAME and UNIT DESIGN GAME (White, 1965) were designed to aid inhabitants of a housing project in describing project needs and individual preferences. This architect-client relationship has been articulated for other settings such as hospitals (THE PLANNING GAME, Summers, 1972), new town projects (WESSPAC, Douglas, Nasar, Bazan, & Summers, 1976), and recreational settings (THE PLAYGROUND DESIGN SIMULATION, Douglas & Bazan, 1976).

Design simulation is an outgrowth of a larger category of gaming simulation methods which has been developed for planning applications over the past ten years. Gaming simulation is used here to designate a modeled real world activity where key variables such as time, space, cost, and quality of life can be manipulated by the participants. It has a structure of more or less explicit rules under which a goal is to be achieved with the allocation of certain limited resources. The intention of this design simulation is to translate user and professional insights into a feasible design solution. Another important purpose of this exercise is to transform "user participation" into usable data for planners and public officials and to provide an opportunity for meaningful consumer involvement in the formulation of public policy. A number of advantages have been ascribed to the use of gaming simulation:

1. Gaming simulation attempts to break down the lag between a design proposal and subsequent community response. It creates, in short, an interactive planning tool.

2. Gaming simulation allows the provision of a common language or relational device for parties with different backgrounds and interests to communicate within the terms of the simulation structure.

3. Gaming simulation provides a chance for direct consumer participation in the design and control of future environments.

4. Gaming simulation suggests a way to express the needs and wants of users directly into the product without having to provide a causal rationale.

5. Gaming simulation permits greater specification and visualization of housing preferences, especially in a simulation package such as PLANNED AGE.

6. Gaming simulation permits comparison among a array of residential options for the aged and facilitates a match between the preferred and extant residences.

7. Gaming simulation "educates" the users and professionals. It increases the ability of the elderly to articulate their needs and sensitizes professionals to the needs of the aged.

Gaming simulation has enjoyed a recent surge in the area of pre-retirement counseling (Manion, 1976), although it makes little use of well-developed methodologies for design simulation in the planning field. Manion (1976) notes several types of pre-retirement programs: coping, proscriptive, pedagogical, and T-group. The newest model he favors has features relevant for the proposed design simulation: training in self-diagnostic skills, communication, independence, awareness of present and future desired life style, skills in life planning, problem-solving, and awareness of retirement planning decision options.

From the social policy literature, Feldman & Feldman (1976) note that of several community strategies (including a social action model and an advocacy model), the self-help model is particularly valued, stressing that older people organize to achieve change in their relations with the social institutions in their environments. The activity of participants in their own interests is what we are also emphasizing, evidencing our belief in older individuals' abilities to plan their own best future life-styles, given skills and procedures for sustained activity in working out solutions to problems. Kuypers & Bengtson (1973) point out the aged person's predilection for social breakdown, given initial doubts about competence and self-esteem. However, Smith (1968) proposes that the base on which competence is defined rests on feelings the person has of himself in regard to the ability he possesses to influence his environment. An older person's participation in PLANNED AGE is one way (s)he can influence his or her environment. When designers and planners play the game, they would be sensitized to the needs and desires of older populations.

III. Potential Users of the Simulation Package

PLANNED AGE provides a flexible research and planning tool: it can be used in its entirety or the simulation components can be implemented individually according to the participant's needs. The possible functions include: 1) a socialization experience for the aged and their families; 2) a sensitization technique for professionals and students; and 3) an interactive planning experience for multiple populations (e.g., the aged, their families, and various expert populations).

Although several groups are suggested as users of PLANNED AGE, the package is particularly directed towards the potential relocator. This user is defined as an aging person dissatisfied with existing living arrangements, or one who must consider a change in lifestyle becauae of physical, psychological, or economic losses.

The relocation literature (Brudno, 1962; Lawton, 1970; Lieberman, Prock & Tobin, 1968) emphasizes that a change in a living environment at critical stages in the life cycle is either a time of psychological gain and adjustment or else poor adaptation and death. Two intervening factors are the aging person's attitude towards the relocation and his or her adequate preparation for it. This simulation technique addresses these concerns by providing poaitive anticipatory socialization experiences.

When used by others, PLANNED AGE can provide a sensitizing experience helpful for understanding the needs and goals of older populations and various strategies for meeting them. The simulation would be particularly useful if employed in academic settings (e.g., gerontology and design classes) and for training in applied settings.

PLANNED AGE can also be used simultaneously by different groups as an exercise in consensus planning. In such a situation, the aged and other users would have as much power in determining policy as the traditional decison makers. Each participating group would bring different types of information to the process. Users, for example, could verbalize their current needs and professionals could address these immediately from their particular perspectives. Thus, decision accountability would be emphasized.

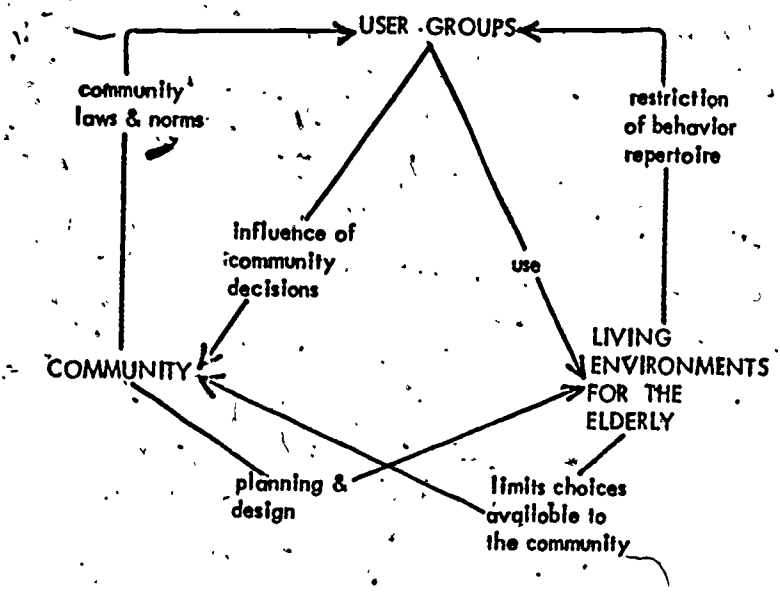
IV. PLANNED AGE: The Simulation Package

PLANNED AGE is a series of three simulations which together articulate the relationships that may occur between 1) the various user groups and living environments for the elderly; 2) the user groups and the social/political community; and 3) the social/political community and living environments for the elderly. Six interactions are noted in Figure 1. These include the influence of the various user groups on community decisons, the influence of the community's laws and norms on the user groups, the use of the living environments by the user groups, the restrictions imposed by the environment upon the behavior repertoires of the users, the planning and design of the living environments by the community, and the limiting of community alternatives by the existing settings.

Needs Assessment/Matching Component. This first simulation has two goals: 1) needs awareness and 2) residential options awareness. This game was designed to provide the aging or any other participant with an agenda of individual socioenvironmental needs and values. This agenda is assessed through a battery of survey instruments.

Following this step, a range of living environments and support options that are currently available are presented to the participant for his or her consideration. Three tracts are designated. Tract one includes retirement hotels and villages, as well as individual residences. Tract two includes nursing facilities of various levels of care. Tract three encompasses sheltered workshops, protective services, home health aides, multi-service day centers, and day hospitals (Shore, 1974). It is argued here

FIGURE 1. THE THEORETICAL FRAMEWORK EXPLORED BY PLANNED AGE



that few older individuals or their families are aware of the complete range of possible institutional and parallel services. This exercise provides one such presentation format. Finally, a participant of this game is guided through an exercise to facilitate a matching of user needs and a feasible life style tract.

A review of current literature on housing for the elderly indicates a lack of knowledge concerning environmental preferences and the best design features for meeting the needs, preferences, and values of the elderly (Carp, 1977). Work by Kahana (1975) isolated several social dimensions important to consider in environmental satisfaction, including resident homogeneity, variability of routine, continuity with former life-styles, privacy, collective vs. individual treatment, control over resources, dependency, order, stimulus input, tolerance of affective expression and delay of gratification. Design strategies for meeting social and physical limitations have been more fully explored, and include such factors as esthetics, location, safety, lighting, heating, and a variety of prosthetic devices (Pastalan & Carson, 1970).

In terms of assessment of the socioenvironmental needs of the aged, older adults have been neglected in both reporting their actual needs and in consuming the information collected. Numerous books and journal articles have reported on the needs of the elderly, without documenting from where or how recently their information was derived. There are several exceptions to this. A Harris poll (1975) presents the myths and realities of aging in America, as divulged by a representative sample of the elderly and other age groups. However, several categories of information useful for planners and architects were not included. In recent work, Kahana and Greenberg (1976) denote strategies for needs assessment for planning health and social programs for the aged, in which the aged are primary sources of information rather than census data on social indicators or the professionals servicing sub-populations. A technique particularly useful to target-derived needs assessment comes out of community psychology, developed by Delbecq (1976). The focus here is on a community forum strategy for assessment, with participants representing all relevant target groups.

In terms of the consuming of information useful for rational residential decision-making, the stereotypical attitude toward the learning abilities and competencies of the aged has no doubt militated against this. Although literature is now available on the planning of living environments for the elderly (e.g., Planning housing environments for the elderly, Planning and managing housing for the elderly, Housing for the elderly: The development and design process), this information is highly technical and is not directed to the elderly. That is one goal of PLANNED AGE.

Because of the increase in housing options in the last few years, it has become even more pressing that the elderly and their families be made aware of the whole realm of living environments which can service their needs. This proliferation of housing has two major etiologies: a federal funding impetus concomitant with expanding numbers of older individuals in the population. Lawton, Newcomer, & Byerts (1976), Carp (1977), Hamovitch, Peterson, & Larson (1969) designate typologies of

elderly housing, conceptualized usually in terms of a continuum of care. White House Conference recommendations for the categorization of environments are as follows:

1) long-term care facilities for the sick
2) facilities with limited medical, food, and homemaker services
3) congregate housing which would provide food and personal services, but not medical services
4) housing for wholly independent living with recreational and activity programs
5) housing in relatives' homes
6) own home.

Shore (1974) lists some alternative services which would facilitate independent living, making institutionalization unnecessary. These include home-based parallel services on an outreach basis (e.g., multipurpose activity day centers, day care, day care for special groups, day hospitals, health maintenance services, geriatric clinics, counseling, wheels-to-meals, sehltered workshops, golden age clubs, information and referral services, pharmacies, transportation) and home outreach services (e.g., meals-on-wheels, homemaker services, home health aides, foster homes, telephone reassurance, protective services, friendly visiting and shoppers' services, special service consultation). Another goal of the first component of PLANNED AGE is to present through a variety of media the complete array of residential options available to older adults.

The steps involved in the construction of the needs assessment/ matching game were as follows:

1) review of the literature on housing needs of the elderly
2) review of the literature on environmental housing options
3) collating a list of sample settings in each of three lifestyle tracts
4) interviewing administrators and managers of selected settings with an NCOA questionnaire assessing environmental characteristics such as neighborhood quality, services offered, programming, aspects of the physical structure, financial considerations, etc; developing visual media from these settings
5) developing questionnaires assessing socioenvironmental needs of the elderly; obtaining data from residents, families, architects, administrators, local officials
6) pretesting of questionnaires with elderly residents in each tract
7) revision of questionnaires
8) retesting with tract samples
9) calibration of the game
10) field testing of the game.

SIMULATION FLOW FOR GAME ONE

1) Players: the elderly, their families, service professionals (e.g., nurses, administrators, social workers), local officials, designers and architects, planners, academicians, students

2a) Assignment of roles and accompanying roles descriptions* e.g.,

Indigent elderly
Chronically ill older person (with heart disease)
Acutely ill older person (pneumonia)
Physically handicapped (severe) - blind, wheel-chair bound
Physically handicapped (moderate) - walker
Widow and widower
Well-off retiree

2b) Assignment of tracts and accompanying tract descriptions

3a) Role participants complete needs assessment questionnaires (social environmental, physical, life skills, health, life satisfaction, housing preferences) according to role and score questionnaires

3b) Tract participants prepare to present materials; receive data on residents' responses to questionnaires, a directory of sample environments, a slide display of representative settings, a listing of environment advantages and disadvantages for various user groups

3c) Tract participants present publicly information for their tract, attempting to sell its advantages to the role participants

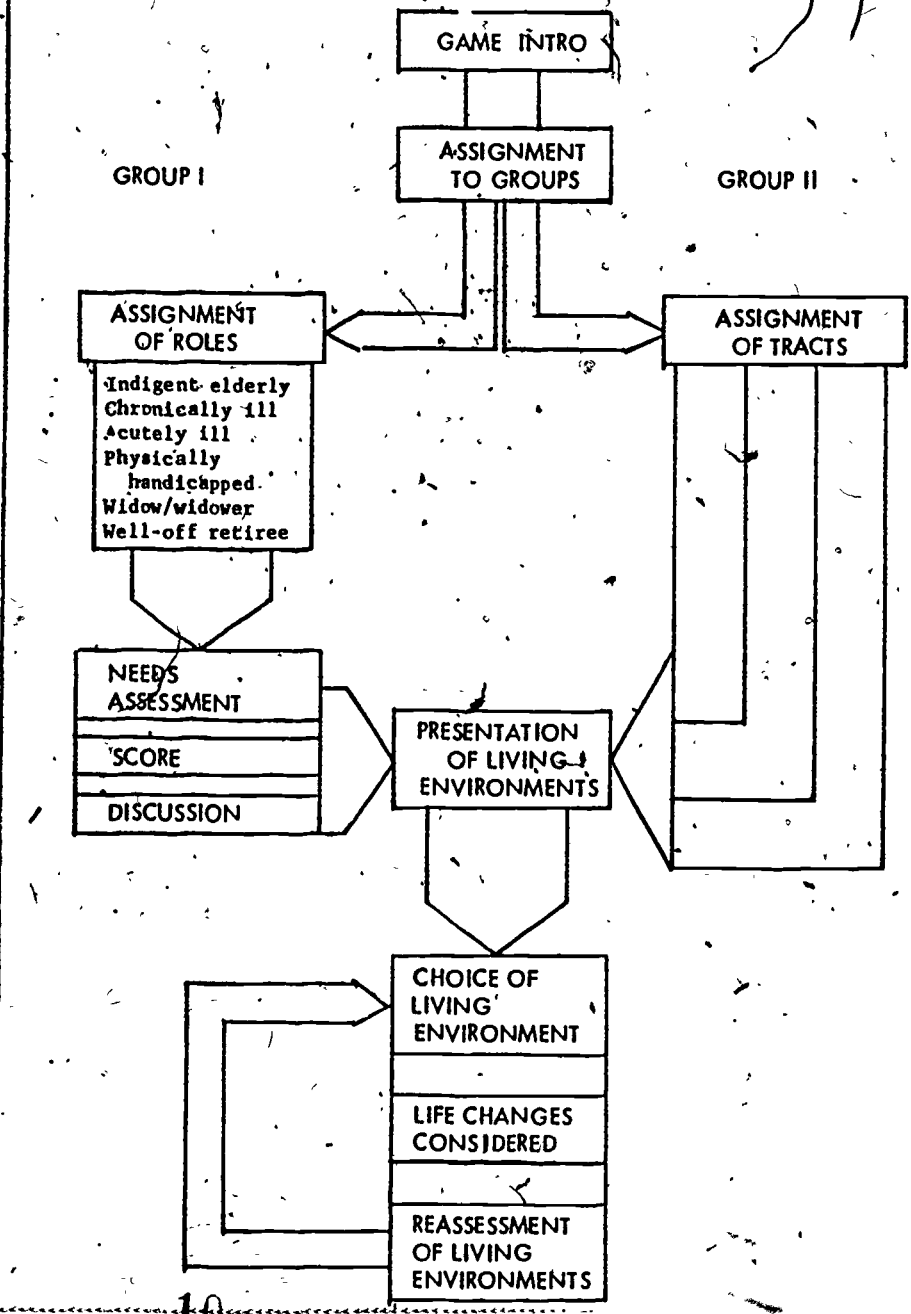
4) Role players select that tract best matching their needs, and present a rationale defending their choice; other players vote as to whether this selection is a good one - opportunity for a re-matching

5) Players in role receive role modification notices describing changes in status, health, or abilities 5 years hence

6) Players evaluate whether selected settings remain adequate given these role modifications

*When the elderly themselves participatein the game, they will not be assigned a role, and will fill out the needs assessment questionnaire as a self-awareness experience.

FLOW OF GAME ONE



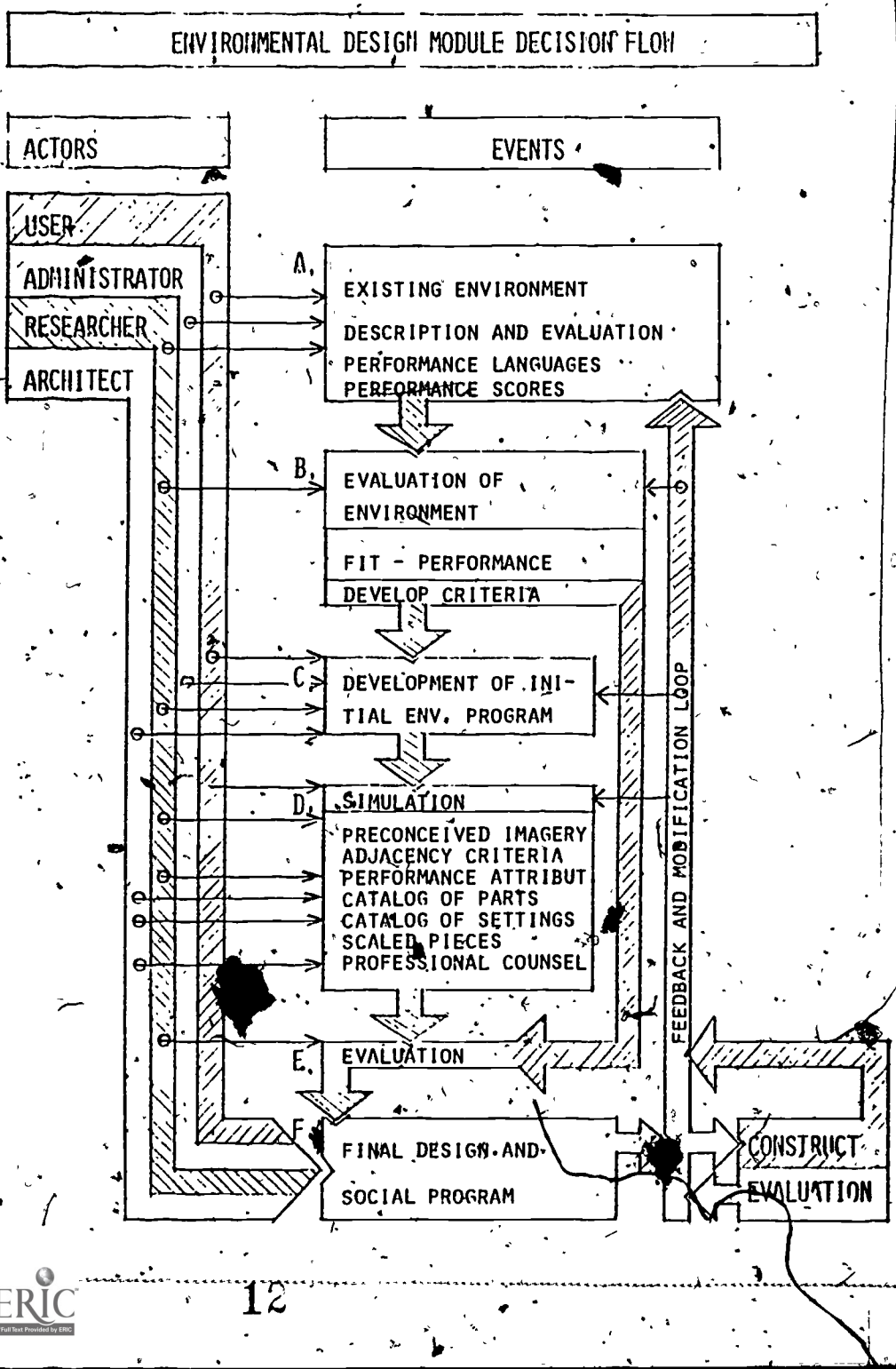
The Environmental Design Component. The opportunity to objectively plan one's future lifestyle, with adequate information as to the benefits and costs of various options is rarely available to a member of any age group. Since the older person is usually viewed as being more past than future oriented, this planning opportunity is even more rare for the aged. It has been argued (Lawton, 1975), however, that the last years of life in a satisfactory setting can be just as important for life satisfaction as were the prior fifty years. Moreover, positive living circumstances could encourage more goal setting for future activity and accomplishments (Schwartz & Mensh, 1974).

As a natural progression from awareness of values and residential options, the objective of this component is to 1) encourage the planning of an ideal future living environment and lifestyle by means of various allocation strategies; 2) to design an environment that would fit this optimal life space; and 3) to evaluate it. A participant here is first asked to allocate a number of limited resources across several lifestyle factors. The player, for example, allocates space and time for social interaction or for solitary activities. Choices are also made bween allocation of funds for better food or for better medical services. A comparison is made at the end of this exercise between the ideal allocation plan and existing environmental systems for the aged so as to 1) aid the potential relocator with residential decision-making and 2) provide an assessment of present systems for the intervener and professional concerned with adequacy of environments for the elderly.

Once the allocation of resources is completed, participants translate the effect of the allocation on the tangible built and programmed environment. The player is asked to design a living space for the aged, given the resources that have been previously budgeted. Variables such as room space, furniture types, lighting, window space, etc. are manipulated until all of the resources are exhausted and a feasible design results. To facilitate this, the player is provided with a catalogue which lists various types of environmental supports and their costs and benefits. Models of the infrastructure are placed on a playing board that simulates the actual design site. The manipulation of these models demonstrates various dynamic interrelationships.

The outcome of this step is an architectural design which could be readily translated into an actual building plan. Throughout the design process, the participant will have access to professional advice. A comparison between the simulated plan and existing plans is encouraged.

After the design is completed, the participant is asked to evaluate it, given designated physiological, psychological, and social needs of the aged. These models are subject to specific criteria developed from the survey of relevant expert populations. The design is tested through an operationalization of its function, i.e., the participant is asked to move through the model examining the effects of the design on potential use. The design is modified after the above learning experience. These modified designs or some synthesis of several iterations could provide the basis for an implementable plan.


ENVIRONMENTAL DESIGN MODULE DECISION FLOW
ACTORS
EVENTS
USER
ADMINISTRATOR
RESEARCHER
ARCHITECT
A.
EXISTING ENVIRONMENT
DESCRIPTION AND EVALUATION
PERFORMANCE LANGUAGES
PERFORMANCE SCORES
B.
EVALUATION OF ENVIRONMENT
FIT - PERFORMANCE
DEVELOP CRITERIA
C.
DEVELOPMENT OF INITIAL ENV. PROGRAM
D.
SIMULATION
PRECONCEIVED IMAGERY
ADJACENCY CRITERIA
PERFORMANCE ATTRIBUT
CATALOG OF PARTS
CATALOG OF SETTINGS
SCALED PIECES
PROFESSIONAL COUNSEL
E.
EVALUATION
F
FINAL DESIGN AND SOCIAL PROGRAM
CONSTRUCT
EVALUATION
FEEDBACK AND MODIFICATION LOOP

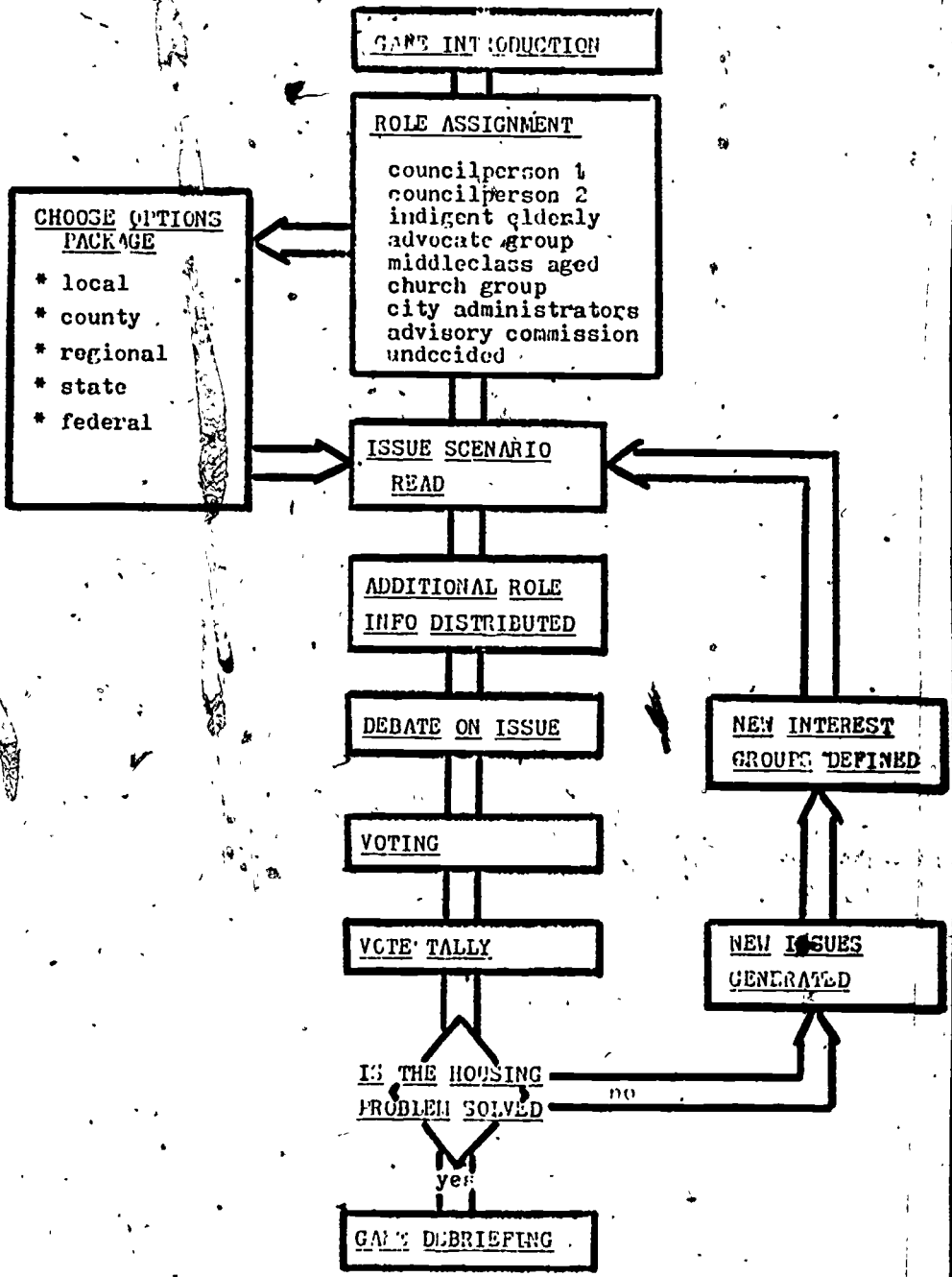
The Community Planning Component. This simulation illustrates the influence of social and political processes within a community on the expression of user needs and the planning and implementation of living environments for the elderly. The major goals of the community planning game are 1) to sensitize players about the realities of compromise which characterize local government considerations of housing for the elderly; 2) to present the various points of view concerning the formulation of a housing plan for the elderly within a particular municipality; and 3) to familiarize decision-makers both with the federal and state funding requirements for housing and with other more innovative methods for funding elderly housing projects without outside support.

The simulation itself is a role exercise in which a participant or group of participants assume one of several roles and attempts to act out this role during several "town meetings". Roles included within this simulation are 1) conservative councilman, 2) liberal councilman, 3) town planner, 4) church group, 5) senior citizen advisory council, 6) radical advocacy group, 7) middle class elderly, 8) indigent elderly, 9) minority groups, and 10) interested but indecisive citizens.

A number of alternatives for the funding of elderly housing are considered. A participant formulates an opinion on each issue and attempts to convince others of the correctness of that opinion. Each participant is given influence chits which are used for "voting" for or against a particular issue. The amount of influence given a role each round is calculated according to 1) how successful that player is in having his or her point of view voted in and 2) how well the player conforms to the assigned role.

Although individuals are given specific information about each housing alternative presented to the community (especially tailored for each role), each player is asked to rely on his or her personal information and stereotypes to formulate arguments for general community discussion. This situation allow the player to learn as much about alternatives for elderly housing as possible within a short period of time through intensive interaction with other participants and also provides a fitting testing ground for each individual's stereotypes.

When played by actual professionals, planners, local officials, and agency and elderly representatives, the community planning simulation becomes a useful tool for citizen and advocate participation in the planning process.


GAME INTRODUCTION
ROLE ASSIGNMENT
councilperson 1
councilperson 2
indigent elderly
advocate group
middleclass aged
church group
city administrators
advisory commission
undecided
CHOOSE OPTIONS PACKAGE
* local
* county
* regional
* state
* federal
ISSUE SCENARIO READ
ADDITIONAL ROLE INFO DISTRIBUTED
DEBATE ON ISSUE
VOTING
VOTE TALLY
IS THE HOUSING PROBLEM SOLVED
no
yes
NEW INTEREST GROUPS DEFINED
NEW ISSUES GENERATED
GAME DEBRIEFING

PLANNED AGE EVALUATION ANALYSIS

Community Planning Game

The first portion of the analysis presents the various characteristics of the participating population. The second half examines specific reactions to the simulation experience.

Population. Those participating in PLANNED AGE represented a diverse group of twelve community members. The age breakdown for this group included individuals under 19 and up to 69 years of age. Of these twelve individuals, one attended the session as an administrator-politician, four attended as educators-researchers, four attended as students, three attended out of self-interest. The majority of the participants lived outside of Centre County. Most of the participants were attending through the recommendation of a friend or colleague. Prior to playing the simulation, six individuals reported a medium knowledge of aging, four reported a low knowledge, and two individuals reported a high knowledge of aging. After the session, all twelve participants reported that their knowledge of aging improved. All felt that the simulation itself was a useful tool.

Questionnaire Evaluation. More specific information regarding the participants' evaluations of the simulation was obtained from a brief questionnaire administered after the simulation session was completed. The questionnaire reflected participants' reactions to playing the game. The results are presented below.

Question 1. Responses to question 1, "Did you enjoy participating in the simulation? Why or why not?" demonstrated an overall appreciation of participating in the simulation. Participants felt that the simulation elucidated the "complex decision-making processes" involved in this "real-life situation". The simulation enabled people to experience "a greater identification with the issues involved through the role-playing". Several of the responses reflected the effects of time constraints; "it was a rushed atmosphere, it could have been longer, so we could have had more discussion, etc.". Again, the overall feeling was that the simulation was an enjoyable experience.

Question 2. Responses to this question, "What kind of educational experience was this for you; what kinds of conclusions did you draw about the planning process for elderly housing?" revealed that the simulation was both a positive and worthwhile experience for the participants. The responses varied along "useful experience, very interesting, and an overall good experience." The conclusions regarding the planning process indicated that the participants' awareness of what constitutes the "realities" of the planning process had increased. The game was an informative tool that demonstrated that the planning process "is indeed multi-faceted and complicated (activity) before any decisions can be arrived at". The following examples are indicative of the range of responses:

"made me realize how people can disagree even though they all want the same goal"

"Interesting to review the political reality of change -- even for what everyone agrees is needed"

"showed the complexity, place of lobbying, diversity of views"

"planning process seems thorough, however it is too cumbersome and slow, and we compromised to the detriment of the elderly"

"It's a complicated process with many factors and community issues to be considered in decision making".

Question 3. In terms of question 3, "Concerning the actual simulation, evaluate the following components: roles, issues, voting, other," the responses provided us with some helpful criticisms. The general consensus indicated that the simulation was realistic, but in general more discussion time was needed to satisfy the participants. It was suggested that less direction be given to the participants in terms of role clarification. This would assume that people would identify with a knowledgeable role. The roles themselves were thought of as representative and well-stated and described. One respondent noted the "absence of just interested community members" from the designated roles and another commented on the absence of "minority members". The other criticisms centered on the voting component. Apparently it was not completely clear as to how the votes were actually allocated and how power shifts happened. The responses indicated that "more leeway for voting and more chance to change the votes of others" was needed.

Question 4. "To what uses could this game be put; where do you think it should be played?" The responses seemed to suggest that simulation gaming, in particular PLANNED AGE, should be introduced across all levels of group organizations with primary emphasis on introducing this game to senior citizens "to make them realize the problems encountered in getting housing", to "youth groups, senior and junior high students, to school boards, community groups, and to younger aged school children (elementary) to help them understand local government and its processes". The participants felt that involving all people at various levels in the community in the simulation experience would have the potential effect of facilitating better decisions regarding housing for the elderly.

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