PLANNING POWER PLAY*: COMMUNITY EDUCATION THROUGH GAMING

by

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This thesis is primarily involved with the development of a planning teaching game called Planning Power Play, and the testing of this game's effectiveness as an educational tool with residents of a local community. The rapid growth of our North American urban centres has brought with it an increasing demand that the citizens be allowed to participate in the planning of their own local residential areas. However, the art of citizen involvement in the modern planning context suffers from a lack of effective techniques of implementation which in part explains the reluctance of many policy makers to initiate such programmes at all. This thesis is intended to assist in overcoming this shortcoming by introducing a new method of encouraging active citizen participation in the planning process.

The study hypothesizes that a planning game can be developed that will be an effective educational tool in citizen involvement programmes in the neighbourhood setting. The thesis initially reviews much of the literature pertaining to teaching games citing examples of the effectiveness of existing teaching games, and building a theory of teaching game draftsmanship. It then proceeds to explain the development of a new teaching game called Planning Power Play.

Five test sessions of Planning Power Play indicated that it was a successful teaching game and potentially useful tool in situations where citizen contact was required. The game fostered an
informal social atmosphere facilitating discussion between the planner and the citizens, with the result that both parties learned from the experience.

The tests indicated that Planning Power Play taught the players the practical constraints imposed upon the development of their local area by the variety of interest groups expressing their divergent viewpoints through the municipal political bargaining process. In addition, the game was practical for use in the citizen participation milieu where many participants were novice game players. The game proved to be engrossing, easy to learn, quick to play, and extremely portable and adaptable.

The conclusion was reached that this thesis was primarily an exploratory study. Planning Power Play is a satisfactory teaching game, but it is not meant to be the final word on planning teaching games. Rather, it is hoped that this game will constitute an initial step encouraging further research in this relatively new aspect of urban planning.
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Lastly, the author wishes to acknowledge his thanks to Dr. Robert W. Collier whose concern with the role of citizens in the planning process greatly influenced the author during the past two years, and who is thus largely responsible for the choice of subject matter of this thesis.
CHAPTER ONE

TEACHING GAMES - A DESIRABLE COMPONENT OF COMMUNITY PLANNING

INTRODUCTION

This thesis will be primarily involved with the development of a planning teaching game called Planning Power Play, and the testing of this game's effectiveness as an educational tool with residents of a local community. This subject reflects the fundamental belief of the author that citizen involvement is essential to successful urban planning; and in addition, that meaningful citizen participation in the planning process is largely dependent upon the citizens being made aware of all circumstances pertaining to the future of their area. Planning Power Play constitutes one attempt to invent a teaching device for use in this context.

In this chapter the assumed need for such a game will be explored in greater detail, and the problem of developing and testing the teaching device will be more precisely defined. In particular the purposes and the resultant format constraints which guided the development of Planning Power Play will be described.

Chapter two will present a review of the literature pertaining to teaching games from which the author has extracted the basis of a theory for teaching game formulation. The rules of teaching game draftsmanship presented at the end of that chapter also constitute guidelines for the Planning Power Play game. A summary of some exis-
ting teaching games in planning and other fields will be presented in Chapter three to demonstrate the teaching effectiveness of existing games that conform to these guidelines.

The Planning Power Play game format and the three versions of the game itself will be described in Chapter four. That chapter and its appendices will demonstrate how the game innovation process sought to embody the theory and practical constraints explained in the earlier chapters. Chapter five will describe the testing method used and the results obtained in the attempt to determine the success of the game in satisfying its stated objectives.

The final chapter will summarize the usefulness of Planning Power Play for citizen involvement projects, and suggest some directions that future research in this field might take.

BASIC ASSUMPTION

The bias of this study will be that informed citizen involvement in the planning of their local neighbourhoods is desirable despite the problems associated with its implementation. It is this assumption which prompted the development of a teaching game such as Planning Power Play.

Citizen participation is an overused and often abused term which requires clarification if our discussion is to be meaningful. In this study the term will not imply that the citizens be given
complete control over the planning of their areas; but rather that a legitimate partnership he formed where the planner is still responsible for the final plan formulation yet at the same time, is acting as a delegate of the people and is thus truly responsive to their desires.

"Citizen Participation, properly understood, can be a part of a feedback mechanism which allows the planner to meet the needs of the community, and at the same time allows the community to consider new perspectives which imaginative planning can disclose." 2

This type of collaborative planning requires two things. Firstly, the citizens and their spokesmen must be made aware of all the pertinent facts concerning the planning of their area. Much of the supposed self centredness and impracticability of citizen views (especially those of single family residential enclaves) will dissipate when they are informed of the consequences of their wishes.

The second requisite of this type of local area planning is that professional spokesmen be supplied to survey citizen opinion and articulate these desires in the form of planning alternatives. Ideally a neighbourhood would be provided with an advocate planner responsible only to the residents. Even if this second step is infeasible in many areas, the education component constitutes a fundamental first step if we recognize the fact that organized resident groups are eminently capable of making rational planning decisions, and even of offering reasonable alternatives to city sponsored proposals when they are given all the pertinent facts at a fairly early stage in the planning process.
It is implied in the above statements that the urban planner should be involved in the community organization and education programme. All citizen participation will be directed towards a planning objective so it would seem ridiculous to call upon some other specialist to organize people when he was not familiar with what he was organizing them for. In addition, the planner can learn a great deal about the community that he is planning for by participating in the citizen involvement programme. Planning Power Play then, is intended to be a planner's tool to both educate citizens and involve the planner.  

It is the author's feeling that this assumption concerning the validity of citizen participation in the planning process is justified for three general reasons:

1) it facilitates the implementation of the plan when completed;

2) it can result in a better quality of plan especially in terms of the satisfaction for those most affected, and

3) it often results in an increased commitment to, and a satisfaction with, the community on the part of the residents.

These assertions are explained in greater detail below.

(1) The necessity for citizen involvement in planning has largely been overlooked except in cases such as housing rehabilitation
schemes where the government encourages residents to repair their own properties as part of a public programme to improve street, park and school facilities. The general attitude appeared to be that unless the residents themselves were spending money on the project they should be consulted as little as possible to avoid unnecessary confusion and delay.

The people however are becoming more vocal in their complaints about heavy handed planning tactics and in many cases are successfully pressuring City Hall to abandon their arbitrary plans rather than risk political suicide. Road proposals have become the focus for many of these confrontations. The Vancouver City Council was persuaded to postpone their plans for a thruway in 1968 after a long and vocal outburst by residents and patrons of Chinatown. Seventy million dollars of pavement end in a muddy field in Toronto as the result of an almost riotous response from affected residents and sympathetic professionals who belatedly realized the disastrous human consequences of the one third completed Spadina Expressway.

This type of citizen reaction has been occurring with increasing frequency on other issues as well. Local residents and concerned planning oriented groups from the entire city forced Vancouver City Council to postpone the rezoning of a large residential area that would have accommodated a shopping centre. In the United States, programmes such as "Model Cities" where citizen participation is a requisite for federal aid, have been brought to a standstill until a compromise
agreement could be worked out allowing the citizens effective power over the expenditure of the funds. In reference to the initial stage of the Model Cities programme, Roland L. Warren stated that:

"... developments during this entire period were dominated by the struggle of neighbourhood residents with city hall for various degrees of power or control over the programme." 6

The majority of these citizen uprisings have had one thing in common - they were a response to a crisis situation. When major changes are thrust too quickly upon people, the result is inevitably a self centred defensive reaction in which no positive action can be taken by either side. Early involvement of citizens in the planning process reduces the irrationality of a crisis situation so that minor points of contention that have been the cause of defeat of many predominantly worthwhile proposals can be rectified before the plan is presented.

Another major source of resistance to any change in crisis situations is the result of fear of an unknown programme. In most cases this apprehension is unfounded and could be easily dispelled by an effective citizen involvement and education programme. It would appear ludicrous then, that any planning staff would risk the demise of a generally good plan by failing to involve and inform the citizens in the preliminary stages.

(2) The involvement of citizens in the planning process can often result in a more satisfactory plan for those affected, which in
turn partially accounts for the ease of implementation discussed above. Planning very often does not provide absolutely right or wrong alternatives. Robert A. Dahl argues that every concerned citizen can to some extent claim the same rights as the city planner since in most cases the city as a whole has:

"... no consensus on the rank order or desired magnitude of community services or function, or of the means of financing them." 7

This would seem a particularly relevant observation for the planning of relatively small neighbourhoods where the local inhabitants are inherently better equipped to state their needs than are city hall planners who are at least one step removed, and perhaps, entirely disinterested. John Bodine contends in fact that citizen groups are responsible for the majority of the major changes in a city's structure. Because of their detailed knowledge of an area, local area citizens groups often provide a spawning ground for some very good ideas that are later adopted by the city policy makers. 8

It has been argued that the neighbourhood citizen view, if any one view can even be determined, will be selfish and limited to their individual front yard or block. The result of citizen planning, the critics say, will be a fragmented inefficient city.

However, the fact that cities are presently, and always have been, segmented into separate neighbourhoods with separate identities only substantiates the fact that people are not indeed all the same
and don't wish to live in the same manner. If people are informed of all the consequences of a present action and still persist in their desires, then it would seem that the plan should reflect their views if it is to be judged good for the citizens rather than for the professional planner.

(3) The final justification for citizen involvement in the planning process is the somewhat idealistic assertion that people will gain a true commitment to their area as a result of feeling that they personally have had a hand in shaping its future. The days of the independent town meeting have been replaced in our larger cities with an increasingly blind and deaf bureaucracy that denies the individual the feeling that he is playing an effective role in the present and future state of this environment.

If the individual is to be allowed this feeling it can only be at the local neighbourhood scale. The fact that relative membership in local voluntary associations increases as city size increases indicates that there is a demand. It is the responsibility of the planner then, to encourage interested citizens to take a part in plotting the future of their own surroundings.

The pride of residence developed by having an effective voice in managing one's environment has been demonstrated in the experiences in the United States with special Homeowners Associations where clusters of from two to five hundred households cooperate to carry on such common functions as maintenance of parks and grounds. A survey of over three
hundred associations in 1961 indicated that these developments exhibited signs of greater pride of ownership than similar areas without cooperative associations. This was manifested through higher levels of maintenance and greater property values. If citizen involvement can produce this type of result, every urban planner should be concerned with imbuing residents with a feeling of effectiveness in the realm of local area planning.

THE ROLE OF TEACHING GAMES IN THE PLANNING PROCESS

The previous section articulated the assumption of the author that citizen education as part of a programme to involve citizens is essential to the planning process. Planning Power Play is meant to function as a teaching tool to encourage two-way citizen involvement where educational information flows to the players, and their reactions and ideas flow back to the planner. It is not suggested that education alone will solve all the problems; but it is felt that this constitutes an essential initial step towards narrowing the presently divergent forces. In this section we shall examine the possible uses of a teaching game such as Planning Power Play and compare it to existing methods.

We can readily distinguish four presently existing areas of planning concern in which a teaching game would be a useful device as a part of a two-way citizen involvement programme.

(1) Urban Renewal and Rehabilitation projects in which the citizens must be encouraged to take an active role in the programme. An education programme could help to dispel unfounded fears and demonstrate
the benefits accruing to citizen support of the project.

(2) Neighbourhood approval and alteration of a citywide Official Plan. A teaching game could be used to explain the need for citywide services, some of which might be distasteful to local areas. It might also help to demonstrate ways in which the plan could be altered to make it more palatable to local needs while still meeting citywide requirements.

(3) Major proposed zoning changes in an area that was beyond the scope of an Official Plan. This use is similar to the previous one except that it is more localized in nature. A teaching game would serve the same purposes as explained above.

(4) The final use for a citizen education and involvement programme could be in the development of local, residential area plans in which every effort was made to satisfy the residents' need within this one section of the larger urban area. Such a plan would probably have a relatively short time horizon such as five years, but would serve to promote orderly development of the area in a manner that allowed the residents to know what to expect.

This local plan would of necessity be limited in some respects by citywide needs such as major roads or parks, and a game could help inform the citizens of these. At the same time, a game such as Planning Power Play could teach the local area residents how they could best realize their local desires through skillful participation in the citywide political arena.
The development of local area plans is presently a somewhat neglected practice. However, more cities are encouraging them and it appears that they will become a widespread reality in the future. Planning Power Play has been developed primarily for use in this type of teaching situation.

A planning game of course, is only one way to encourage citizen awareness and participation on local planning issues. The mass media including the Press, Radio, and Television are powerful forces that have helped to bring city planning in general to the forefront - especially in our larger urban centres. However, these media have dealt primarily with broader issues such as pollution or traffic congestion, and have been simultaneously too vague and uncomprehensive to pertain to local neighbourhood matters. The mass media also provide only a one-way type of communication.

Effective education depends on a two-way mode of communication where queries can be clarified as the process progresses. This is particularly important in planning education in the neighbourhood setting where serious misunderstandings can arise very easily. What we might call the "personal touch" is needed here and several forms of such contact presently exist.

Personal interviews can both gain information for the planner and be a source of information for the resident if enough time is given to competent interviewers with a background knowledge of the issues. It is however, very time consuming and thus expensive.
Public meetings or lecture sessions can provide a less costly means of generating meaningful citizen contacts. They must however, be fast moving and topical to maintain interest. It is also important that the attendance be limited to under forty to ensure an effective dialogue and discussion.

The placement of central information centres within local areas has also been used to good effect - especially in urban renewal projects. Such centres however, only cater to those, courageous or interested enough to go to the centre initially.

The proposed planning game is meant to supplement these existing means of local area contact and education. A game can create a high degree of interest as it teaches so it should provide a useful tool to initiate the teaching process and to generate citizen concern to the point where they will want to take on a share of the planning of their area. Planning Power Play is one variety of teaching game designed to broaden peoples awareness concerning the political decision making process affecting their area. The next section will devote itself to defining this proposed game and the means of testing its effectiveness.

**DEFINITION OF THE STUDY**

**Hypothesis**

As mentioned at the outset of this chapter, the primary purpose of this thesis is to develop and test a planning teaching game. A
formalized statement of this intent will serve to guide the reader in his examination of the following chapters.

The hypothesis of this study is that a planning game can be developed that will be an effective educational tool in citizen involvement in the neighbourhood setting. The study will attempt to substantiate this statement by explaining the development of one specific game (Planning Power Play), and by testing its success in fulfilling its specific teaching goals.

The Neighbourhood Setting

The reader need not be involved with the continuing dialogue over the validity of the neighbourhood as a unit of social and spatial organization in today's urban centres. The important concept is that this is a local area with some raison d'être - whether it be historic or traditional roots, geographic limitations, homogeneous social characteristics or an arbitrarily chosen Urban Renewal Area. The only constraint is inferred in the word local - that the number of people and geographic scope of the area is such that the residents can comprehend it and feel that they have a voice in it.

A game could be used in such a local area in a case where small, block groups had been organized, perhaps to decide on how they wanted to see their area develop over the next 5 years, and where the planning staff was contacting each group in the process of an education and discussion programme. Such a game could be played with each group
to simultaneously instill an interest in local planning, and educate persons as a basis for further discussion.

Planning Power Play was developed with a specific local area in mind. Although the game was only played once in this area, it was designed as a tool to help the residents of Dunbar in their endeavours to draw up their own community development plan in the absence of any city plan or city planning staff encouragement.

Dunbar is a middle class, predominately single family residential area less than four miles from downtown Vancouver. It is a relatively stable area of approximately 6,000 single family homes, ninety percent of which are owner occupied. As a result, it is largely committed to maintaining the status quo, or at least to ensuring that any necessary redevelopment be well controlled so as to prevent any significant alteration to the lifestyle. Planning Power Play then, strongly reflects the needs of middle class Dunbar; and although the game proved effective in other situations as well, its design was primarily engineered to satisfy the demands of this one type of situation.

The Purposes Of The Game

The purposes of the game have been alluded to throughout this chapter and are largely the consequence of its intended use in situations similar to Dunbar. The game format and the three playing versions developed will be outlined in detail in Chapter four. In addition, the general rules of successful game draftsmanship will be discussed in Chapter two.
However, there are four basic goals and requisites that in fact define the game and will be outlined here for future reference.

(1) The basic purpose of any teaching game used in this role is to provide a vehicle to encourage two-way communication. Planning Power Play is intended to facilitate the transfer of knowledge and information from the planner to the citizen, and at the same time to create an informal atmosphere of interest and concern conducive to citizen feedback of ideas to the planner. In this manner then, it is intended to encourage effective citizen participation in the formulation of local plans.

"Informing citizens of their rights, responsibilities, and options can be the most important, first step toward legitimate citizen participation. However, too frequently the emphasis is placed on a one-way flow of information - from officials to citizens - with no channel provided for feedback and no power for negotiation. Under these conditions, particularly when information is provided at a late stage in planning, people have little opportunity to influence the programme designed for their benefit." 13

(2) Planning Power Play should facilitate the teaching of facts and concepts relevant to local area planning by creating a simplified but realistic environment in which the players can experience the political decision making process that affects their community's physical future. In this manner the players should learn the practical constraints on the planning of their own area that are imposed through the political bargaining process. The game will strive to teach three lessons in this respect.

(i) That there are a great many differing opinions on any one issue (even local issues), and that these opinions are held by people in the local
area as well as by groups from the city at large;

(ii) That these varying interest groups have varying powers as a direct result of both their actual power in the city and this area, and their degree of concern over any one issue, and

(iii) That there are citywide pressures that must of necessity relate to the local area merely because it forms a non discrete part of the larger entity.

(3) Along with the citywide constraints imposed on local planning it is also intended that Planning Power Play will show citizens how they can best achieve those issues that are most important to them by skillful bargaining in the political realm. The game demonstrates that the groups with a citywide power base can overpower local power groups even on seemingly purely local issues unless the local groups unite and cooperate both with each other and outside groups. The game is designed so that a skillful and cooperative bargaining strategy will produce game winning results for the Dunbar based power groups. It is intended then, that Planning Power Play will engender a feeling among players that skillful local power groups can indeed play an effective role in the real political world.

(4) Finally, it is the purpose of Planning Power Play to demonstrate the inherent difficulties in a crisis approach to planning. The game will present issues that must be decided upon as they arise in an ad hoc manner. It is expected that the players, through experiencing the additional pressures imposed upon the bargaining process as a result of
this crisis format, will appreciate the advantages of planned development.

Format Constraints

The fact that the above lessons are to be taught to citizens with a great divergence of backgrounds in a variety of public meeting environments, immediately puts several format constraints on the nature of Planning Power Play. These six constraints listed below along with the previously described game purposes and the rules of game draftsman-ship specified in Chapter two, constitute all of the guidelines for the game, and will be referred to throughout the thesis.

(1) It must be of fairly short duration to be suitable for evening or weekend half day meetings, and to ensure maintenance of a high degree of interest among persons who can be expected to have a fairly short attention span.

(2) It must be capable of being played by moderately large groups if any significant proportion of an area’s population are to benefit from it without incurring a terrible expense in time. It should then, be suitable for groups of from 8-32 persons.

(3) It must be simple enough to run that one person with portable props can operate it in a variety of physical settings.

(4) It must be interesting and fun to play for the residents, to help instill an interest and enthusiasm.
Yet it must be educational at least to the point that it promotes further discussions, and hopefully so that it will produce insights as it is being played.

The content must be simple and clearly enough presented that it can be easily grasped by the residents, many of whom will have minimal specific knowledge of the affect of the political bargaining process on the future development or lack of development in their area.

**Testing The Game: "Effective Educational Tool"**

The format constraints and game purposes defined above constitute the testing criteria for Planning Power Play. If the testing concludes that the final game version complies with these stated objectives the game can be considered an effective educational tool.

At this point it is necessary to narrow the scope of involvement somewhat. Testing of this game could have involved demonstrating three things:

1) That the game when played fulfilled its four purposes as set out in the previous section of this chapter;

2) That the game adhered to the format constraints for a citizen involvement and teaching game as set out in the previous section, and
3) That the game playing "process" will be useful (perhaps even more useful than other methods) in a local area education programme.

This paper can only attempt to assess the first two test areas. Relative to the testing of game purposes, Chapters two and three will explain through a review of literature pertaining to existing games, what lessons games generally teach best and what the criteria for success are. Chapter five will explain how this study attempted to test whether Planning Power Play satisfied its own purposes. It will also report the test results of this aspect which tended to substantiate the hypothesis even though they were less precise than was hoped for.

The second testable area concerning the adherence of Planning Power Play to the format constraints will be relatively straightforward to verify. The game description in Chapter four will point out how the game conforms to the rules of teaching game draftsmanship and the format constraints. Some further observations from in-the-field use of the game, and some simple tests presented in Chapter five will provide further substantiation of this part of the hypothesis.

The testing of the game playing process per se is beyond the scope of this thesis. Such an examination would involve detailed observation and testing of an ongoing project (or perhaps two similar projects - one with the game and one without) over a long time span (perhaps 2 years). Even then it would be a very complicated task to
arrive at even tenuous conclusions as to the relative importance of the game playing process.

This subject however, will be commented on in the final chapter along with a general assessment of the other two success criteria. This examination will not attempt to draw any rigorous conclusions in this regard; but general insights as to the possible usefulness of such a technique and possible refinements meriting further experimentation in the field will be discussed.


This is not a new idea. The Harvard Graduate School of Design offers a field placement course for students in architecture, planning and social work. See, e.g., "Urban Field Service - an Initial Report," Harvard Graduate School of Design, Boston, Mass., 1968. (Mimeographed.)

The encouragement given to residents in Hamilton to improve their homes is one of many such examples. See, e.g., Graham D. Emslie, "Hamilton's North End: The Sociologist Speaks," Urban Renewal and Public Housing in Canada, Vol. 3, No. 3 (August 1967), pp. 5-7.

A similar approach to encourage participation was used in Ottawa to solicit citizen cooperation with a citywide clean up campaign. See, e.g., Peter G. Burns, "Ottawa - Beautiful Future," Ibid. Vol. 3, No. 2 (May 1967), pp. 2-6.

A brief report on the furor that caused Metro Toronto to stop work on the Spadina Expressway in 1969 appeared as the article, "Cities: Do the Planners Know Best?" Time Magazine, February 16, 1970, pp. 11-12.


A brief recount of the specific cases in Philadelphia and New Haven is presented by Sherry R. Arnstein in "A Ladder of Citizen Participation," p. 222.

John Bodine theorizes that change in a plan or city structure is largely dependent upon small numbers of less prominent members of a community. The hard work of small groups of these people bring new and innovative ideas up to the point where they have gained enough respectability that the power elite will consider sponsoring and ultimately carrying them out. See, e.g., "The Indispensable One-Hundredth of 1 Percent," in Taming Megalopolis Vol. II, ed. by H. Wentworth Eldredge (New York: Anchor Books, 1967), pp. 956 - 970.

Alvin Boskoff's study in Detroit showed that a much larger proportion of city dwellers were members of purpose oriented groups. In Detroit he found that an average of 63% of the population belonged to one or more such groups, and that this was even higher in the middle and upper income ranges. See, e.g., The Sociology of Urban Regions (New York: Appleton Press, 1962), pp. 161-3.

This sample included a variety of Associations, many of which were old and far from exclusive. Some of the more notable examples were Georgetown, Resten and Radburn. See, e.g., The Urban Land Institute, Technical Bulletin #50: The Homes Association Handbook (Washington, D.C.: Urban Land Institute, October 1964).

W.H. Whyte provides a more social and architectural comment on this form of development in Cluster Development (New York: American Conservation Association Inc., 1964).

This approach to planning has been used in the City of Toronto for several years. The City has designated many neighbourhoods, and planners are in the process of making up five year development plans for each of these. The Toronto experiment suffers from a generally shallow level of citizen participation and quite inflexible limitations imposed by previously decided upon citywide transportation and services requirements. However, the programme is an important step towards allowing residents to have a meaningful voice in the future of their local area.

The two sides of this controversy are well summarized in two books. Milton Kotler presents a strong argument for local autonomous neighbourhood groups that ideally would govern themselves. See e.g., Neighbourhood Government (New York: Bobbs-Merrill Co., 1969).

Suzanne Keller examined the neighbourhood in an attempt to determine if it still existed. Her conclusion was that in many larger urban centres, the geographically centred neighbourhood really did not exist e.g., The Urban Neighbourhood: A Sociological Perspective (New York: Random House, 1968).
NOTES: CHAPTER ONE CONTINUED

CHAPTER TWO

TOWARDS A THEORY OF GAMING: A REVIEW OF LITERATURE

Chapter one specified the goals and thus the limitations imposed upon the development of a game. Chapter four will explain the process of developing the series of Planning Power Play games, and will describe the final version used. The apparent lack of any work on a game meeting our specific requirements necessitated the innovation of the Planning Power Play game format. However, this game design relies heavily on the now substantial body of literature pertaining to game development and use. Consequently, this chapter will serve as a review of the underlying considerations that went into the formulation of Planning Power Play.

GAMES - WHAT ARE THEY?

The playing of games would seem to constitute an intrinsic quality of man. Their usage as a mode of entertainment and testing of skills dates back almost to man's inception. Today the word game is applied to activities ranging from children's games of hopscotch or snakes and ladders to inhibition stripping, adult games sporting such descriptive names as "Strip-Tac-Toe" or "Adultery". The term game serves to describe mock United Nation meetings, simulated war manoeuvres and complex mathematical formulas, and it has recently been applied to a study of the
It will take the largest part of this chapter to fully clarify this maze of meanings but the definition of a game by Sarane S. Boocock serves as a convenient starting-point. He describes a game as:

"A voluntary activity or occupation executed within certain fixed limits, of time and place, according to rules freely accepted but absolutely binding, ..."

In addition it should be emphasized that games are unrealistic in that ones actions in a game have no real-world affects.

It is valid to state that all games are educational, although obviously in vastly varying degrees. The majority of games are also considered as entertaining; and often this aspect predominates to the extent of virtually eliminating the educational role.

A further distinction can be made between two types of educational games depending on their use:

1) Games used as a research tool, and
2) Games used as a teaching device.

The first category includes those educational games that are, in effect, a research tool. These games are educational in that a person invents and plays them to discover new facts, rather than to convey an existing body of knowledge. They are of minor importance to this examination; but merit explanation even if merely to avoid future misconceptions.
Simulation Models

Research games are primarily of the simulation type in which the game inventor constructs a replica of the real world which can then be tested. Engineers have been using this method for years in their construction of simulated "mock-ups" of major projects such as dam sites.

As a result of the capability of computers, simulations are increasingly favoured by social scientists and urban planners who wish to create an artificial laboratory in which to test their ideas in as rigorous a manner as the physical scientist. By inserting masses of data describing present phenomena and the relationships between them, a simulation model can be developed that will show the future performance of a social system, an economic system, or a city environment including many such systems.

Simulations are particularly useful in prediction where the irrationality of human decision making does not affect the outcome. These were first used for such military purposes as testing the performance of proposed jet fighter designs by simulating aerial dog fights using the proposed flight characteristics of the planes. More recently simulations have been used effectively by social scientists.

"As a highly compact capsulization, social science simulation may offer its lessons faster to the participants than firsthand field observation can provide to the observer. It can also provide a common vocabulary and mutual frame of reference for all disciplines."
Simulation models have also been put to work in the attempt to rationalize urban development. They have been used to predict future trouble spots in traffic systems, and to measure the impact of economic policies on the housing market. J.W. Forrester has recently developed a massive computer simulation model that systematizes all the interrelationships encountered in a medium sized city. Such models may soon become commonplace and may revolutionize our urban planning process - but they can never be an effective teaching tool for citizens.

**Game Theory**

Game Theory is another form of research game tool that deserves some clarification. As the name implies, game theory is not so much a game as a framework to study game situations. Given an existing situation the "player" uses the model to compute his optimal strategy and his ultimate payoff. It is primarily a decision-making tool.

"The game - theoretical approach is unique in that it is concerned with determining the decisions that should be made under certain circumstances rather than predicting what decisions will be made."  

Game theory originally revolved around a two person payoff matrix where one person's gain was the other's loss (zero sum). The theory originated in 1944 with the writings of Von Neumann and Morgenstern to rationalize economic decisions. Elementary war gaming is based on this principle where one nation seeks to maximize his payoff - his opponent's loss. The technique has even been used in the field of moral philosophy.
to aid a person in comparing his own preferences for alternative courses of action.  

Game theory can also be applied to non zero sum games and to situations with more than two persons. It can become a predictive device when used by a third party to analyse the optimal, and thus assumedly the most probable, strategies of two or more groups of players. The "Prisoners Dilemma" game has been used to explain and predict the phenomenon of ghetto expansion. Given a set of facts describing a housing problem and the non-cooperative nature of existing owners, an analyst using simple game theory can identify the possible ramifications of a negro household moving into a white community, and can predict the probable outcome.

In conclusion we can state that game theory, whether it is used by a decision maker to rationalize his thought processes or by an analyst to predict and explain the behaviour of others, remains primarily a research tool - not a teaching device. The only function of game theory would have been to analyse the Planning Power Play game to ensure that all roles had an equal opportunity of winning. However game theory proved ineffective for the analysis of Planning Power Play, so that it can claim little relevance to the remaining discussion on teaching games.

**GAMES DO TEACH**

A game can be an effective teaching device that is capable of
imbuing the players with new insights and general knowledge on a variety of subjects. It is this type of game, primarily intended to teach facts already known by the game inventor, that will be the major concern for the remainder of this chapter.

It is a universally accepted truth that at worst games do generate an interest which is useful for subsequent learning. Studies relating age and intelligence to the frequency and type of games children play have shown some strong correlations between frequent game playing and high intelligence. The direction of causality has yet to be proven in such studies but Sarane Boocock, an authority on childrens educational games, feels that his experience in developing and testing games provides convincing evidence that games do play a part in the evolution of intelligence.

"But we also believe that games in themselves teach, that the players learn from their very participation in the game." 10

Boocock and his associates have identified and tentatively proven the existence of three types of direct learning that results from the playing of teaching games:11

1) the learning of individual facts expressed in the game;

2) the underlying processes embodied in the game as game winning strategies are learned and retained, and

3) the alternative strategies of decision making are usually acquired in the game playing process. As
a result a player is likely to gain a feeling of effectiveness over the environment dealt with in the game.

In her experience with social studies classroom games Marilyn Clayton concludes that games are particularly appropriate for the latter two types of learning:

"... that the proper stuff of education was the fundamental structure - as opposed to the factual detail - of a subject." 12

Six Fundamentals Of Learning

It is not a coincidence that games teach - they satisfy all of the commonly agreed upon prerequisites for successful learning. The field of neural physiology provides a handy framework of six fundamentals of learning by which we can examine the ways in which teaching games foster understanding. 13

(1) "Contiguity" - Learning is fostered when one's performance and the reward for one's performance are closely associated. Gaming usually provides this incentive by constantly informing the player of the change in his score as a result of his last action.

(2) "Effect" - If the end result or effect is satisfying, learning is more likely to take place. The fact that games can present a familiar subject matter that players can identify with helps to create
a happy result - especially if the player wins.

(3) "Intensity" - The level of learning is proportional to the degree of personal commitment with the thing being learned. Games are particularly effective in this regard. The desire to win combined with the realism of a simulated environment sparks intense interest and commitment among players. A case substantiating this theory is presented by Gerald Zaltman who found that the students who most actively borrowed and purchased in his "Consumer Game" scored the highest post-game test scores.\footnote{14}

Another advantage of gaming is this regard, is the fact that games prevent players from withdrawing as so often occurs in classroom teaching. Even the most retiring students are drawn into the game playing process through the required interaction with their fellow students.\footnote{15}

(4) "Organization" - Learning is facilitated when the material is organized into a format that the student finds meaningful. A simulated game format is ideally suited to present an organized body of knowledge that makes explicit the relationships between the component parts.

(5) "Facilitation and Interference" - The successful learning process should start with simple concepts of general student knowledge, and should work progressively towards the more complex versions without interference in the process arising from the introduction of new unrelated concepts. The simulated game process satisfies this requisite in
that it allows the player to progress step by step as he masters each in turn.

Games also minimize "interference" by doing away with the student teacher relationship that can upset the learning atmosphere. This is of particular importance for games directed at adults since it tends to remove the "student" label from an adult citizen.

"a game has tremendous potential for making participation in planning a marketable reality." 16

(6) "Exercise" - Repetition gives added force to the learning process provided that there is no corresponding decrease in intensity. In a simulation game the player is constantly reviewing his strategies and thus repeatedly using the body of facts to be learned - and this in no way detracts from his involvement in the game.

It is clear then, that a game should be an effective teaching tool if it can fulfill all six of these requisites. The final step in this study of the teaching capabilities of games should be to examine a few examples of successful tests of teaching games.

The Proof Is In The Playing

Although the science of testing game effectiveness is lagging far behind the "artists" ability to formulate workable games there are numerous examples that have been tested with encouraging results. A brief review of some of these not already mentioned will add weight to
the preceding theories.

It was demonstrated that students learn game winning strategies very quickly. In Schild's simulated "Parent Child Game" a policy of cooperation and bi-lateral agreements between the child and parent roles on each team was necessary if they were to beat other teams. He found that this strategy, which constituted the fundamental lesson to be taught by the game, was universally adhered to. 17

Eugene H. Baker, working with Grade eight students, found the gaming approach to be more effective than classroom methods for the teaching of pre-civil war American history. He chose four classes equally matched in intelligence and pre-knowledge of the subject. After fifteen days of instruction (two classes using gaming and two with classroom instruction), he administered a seventy six item test on factual knowledge, and found that the classes taught by gaming scored significantly higher. 18

The National Gaming Council recently reported the success of a widescale programme of gaming to teach such diverse subjects as History, Languages, Business and Biology. The State of Minnesota was encouraging this method in state high schools. Their survey disclosed a high degree of satisfaction with the technique. 19

Another test of teenage 4-H Club members playing Michael Inbar's "Community Disaster Simulation" substantiated two further characteristics of teaching games: 20
1) that the effectiveness of gaming for education does not vary significantly with the backgrounds of the players, and

2) that slightly better results can be expected if the subject matter covered is of interest to the players.

If the same characteristics can be assumed to accrue to other games, these results suggest that gaming would be extremely applicable to citizen planning education since planning games would be played with a wide spectrum of persons all sharing considerable interest in the subject matter of the game - their urban environment.

THREE COMPONENTS OF TEACHING GAMES

The data reported in the last section establishes that some games at least, do teach. The authors referred to, suggested firstly why games teach and secondly, what is learned from a game playing process. However, no mention has yet been made as to how games teach. This section will tackle this question by re-examining teaching games in more detail to determine what aspects of a game best satisfy the six fundamentals of learning.

For the purposes of this discussion the author suggests that three components of teaching games can be identified, each of which makes a unique contribution to the teaching potential of a game. At the risk of oversimplifying, they can be designated:
1) Competition,
2) Simulation,
3) Role Playing.

Each of these, when carried to their extreme form, can constitute the entire structure of a game. However, most teaching games include elements of all three. The game of Monopoly provides an example familiar to most readers. Monopoly is primarily a simple competitive game where each player attempts to win out over his adversaries. A moderate level of skill is required to compete, but chance plays a large enough role to remove the personal onus on losing. If a player loses he can always claim bad luck, and this ensures that the game is fun.

Monopoly is also a simulation in that it is an approximate replica of the environment - in this case of the land purchasing and development system in a city. The rule that you must assemble all the properties of one section before you develop houses (or hotels) is a valid description of reality. The entrepreneur in Monopoly faces basically the same problems with developing "St. James Place" as the men who assembled the land for Toronto's St. James Town. In this way, participants do learn by playing.

Monopoly has practically none of the role playing component. Each player assumes the same human role - developer - and although each may have a different strategy, the game does not enforce a clear distinction between the goals of the different players. One can see however, that Monopoly does contain all three of these components.
The remainder of this section will let us examine each of these in greater detail to gain an understanding of how each contributes to the teaching process in game playing.

**Competition**

Most definitions of simple games emphasize this aspect. A game is:

"... defined as any contest (play) among adversaries (players) operating under constraints (rules) for an objective (winning victory or payoff)."  

This competition aspect is primarily responsible for the image of a game as being exciting and fun whether it be a physical game (track and field), or a mental contest such as chess.

There are two different types of competition - direct and indirect. In a direct competition game the players participate openly, and thus can interfere with their opponents' performance. Monopoly or bridge are examples. The indirect form of competition is apparent in a game like golf or poker where the adversaries compete individually without interference until a "showdown" at the conclusion of play. The extreme form of this type is the one person game where the participant competes against the game structure itself as in solitaire or the series of "W F F ' N Proof" games.

The degree of competition in a teaching game is largely dependent on two additional characteristics - skill and chance. Games requiring skill to win generate a more intense mood of competition.
However they can cause frustration in the player who constantly loses, perhaps sacrificing that player's attention. Psychologists tell us that a normal four year old can cope with the frustration of losing, but our everyday experiences indicate that this may be more of an academic truth than a reality. Chance constitutes the so-called fun of a game because it minimizes the player's responsibility for losing by clearly dramatizing the limits of skill. However, if chance predominates, the player may become a less fierce competitor because of a different type of frustration arising from the belief that personal effort will not effect the outcome anyway. A clever balance between skill and chance is essential, if a maximum level of interest is to be maintained in all players.

The incentive to win is basic to the teaching qualities of a game.

"The use of games takes as its starting-point the self-interested individual ..., and requires that any non-self interested behaviour emerge from pursuit of his goals, as a means to those individual ends." 22

This component is responsible for maintaining interest and lengthening attention spans, and thus is instrumental in generating the "intensity" needed to learn initially, and to "exercise" or review the facts learned. At the same time the game playing process motivates people to learn things they might otherwise never have considered worthy of study. If clever game rules can equate the lesson to be taught and the game winning strategy, one is virtually assured that the game will teach basic concepts and effective decision making, even if detailed facts are over-
looked. Rules that assure a continuous scorekeeping system also increase the competition and contribute to the "continuity" requisite for learning.

We can conclude from the above firstly that direct competition games will generate greater "intensity" and thus greater learning. However the success of the "WFF'N Proof" series of one person puzzles shows that indirect "showdown" competition can also be extremely effective. Secondly we can state that games emphasizing skill rather than chance will be more effective teaching tools - especially if enough chance is included to partially protect the pride of the constant loser.

The one limitation to the competitive game is the number of players. The play will become more intense when the number of players is reduced because each of the actors has a greater chance of affecting the total outcome. It is desirable then to restrict the numbers: but alternative methods can be used if needed to involve additional persons with only minor reductions in player interest.

In conclusion it should be emphasized that not all competitive games are teaching tools. There are a host of childrens and adult recreational games that teach virtually nothing even if they do arouse enthusiasm. However, the competition component does generate an interest that is invaluable if the game content is to be designed for teaching purposes.

Simulation

The simulation component is that part of a game that attempts
to create a facsimile of the real physical environment. As was
discussed earlier, some simulations are purely prescriptive research
tools. However this same technique can form the basis for many
teaching games. Alfred Blumstein distinguished five levels of simu-
lation pertinent to this discussion. 24

1) Reality.

2) Operational Exercise. This is only one step from
reality and involves the testing of activities in
actual in-the-field conditions.

3) Gaming. This involves the interaction of men with
a simulated facsimile of their physical environment
whether the simulation be a computer model or a
simple drawing.

4) Simulation. This term implies the use of a detailed
model, usually a computer model, where all the decisions
are made by the machine.

5) Analytic Models. These would be highly abstract and
concise models often stated in the form of mathematical
equations to summarize general concepts.

The gaming type of simulation is the only pertinent level for
teaching games. In this type of simulation the player is presented
with a simulated aspect of his environment, and his decision will alter
or leave it the same. The participant can then observe, in the relative
safety of his "laboratory", the affect of his decision on the total
system.

"They present a dynamic situation which frequently can be
provided in no other way because of the cost or because of
the irreversible nature of decisions in the real world." 25
Simulation games can take many forms. They may not even be a game in the sense of being competitive and having a winner. One such example is the game "Simulating The Growth Of A Town", in which a group of students discuss the development of a city from its frontier town roots to the present. In this case the simulation is merely a large map board and a set of rules that necessitate some development at certain stages. It is a group project and there are no winners. It serves primarily as a focus for student reading assignments and discussion. The other extreme is a game like "Metropolis" to be discussed in the next chapter in which students act as decision makers with a simulated computer model of a simplified city. The student's decisions are fed into the computer which calculates and reports all the ramifications for the next time period.

The simulation component is a valuable teaching tool in that it encourages all three types of learning identified by Boocock in the previous section of this chapter. The fact that the participant actually experiences the changes in the simulated environment as a result of his decisions makes simulation an excellent device for training decision makers, and for developing feelings of efficacy. This approach also simplifies a complicated system, and arranges it in a logical order which facilitates the teaching of fundamental concepts and processes that often are better understood when studied over a time spectrum. In addition, the reality of a simulation aids the student in learning detailed facts included in the game.

Simulations are especially important to the "organization" and
the "facilitation and interference" aspects of learning. They provide an orderly framework for learning, starting with simple concepts and allowing a student to work at his own speed toward the more complex ones. In addition simulations do help to create an added "Intensity" especially when combined with competitive games.

"They are generally considered fun to play, thereby capturing the attention of the players for long periods of time." 27

In this regard simulations also help in creating a substantial "effect". If the simulated illusion is fully developed before the game, the players become more involved with the model and thus more willing to accept the final outcome. Simulations have a functional advantage in teaching also, in that they are quite easily altered to meet new situations.

Simulations do however, have some drawbacks as teaching devices.

(1) It is difficult to measure the degree of learning from this technique. This is a characteristic of all forms of games however, and should not prejudice our use of simulations.

(2) Simulations are often very expensive to set up. This is especially true of computer simulations that invariably require the collection of data not normally available.

(3) Simulations are often unwieldy and in the case of computer games - singularly unportable.

(4) The greatest problem with simulation is that students can
very easily learn the wrong lessons:

"A possible danger of reality games is the learning of spurious analogies and an overrating of the predictability of events."  

This is especially valid when simulation is combined with competitive gaming including some chance since the result is no longer an accurate facsimile of reality. For example, uniform initial resources give all players an equal chance to win the game but this is hardly representative of the real world. It is also unrealistic to only have one game winner when in reality there are often many.

In conclusion, the simulation component is essential for teaching games. It provides the factual body of content for any learning game. However, this type of game can be even more effective if it is skillfully blended with a competitive game to help generate the interest in the factual base provided by the simulation.

Role Playing

Role playing refers to the activity of one player, or team of players acting out the desires of another person or group of people. These games have their roots in the science of psychology and the technique of psychodrama as developed during the nineteen thirties by Moreno and his followers in training schools for delinquent girls.

Role playing is essentially just one type of simulation. The simulation in the previous chapter referred primarily to the total physical environment, while role playing simulates the human environment. The latter is of course, dependent on the former since the simulated
players of role playing must operate in a physically simulated environment.

The real life equivalent of a role playing bargaining game takes place every time members of a city council or a board of directors confront each other around a table. To change this into a teaching game, requires the mere substitution of unenlightened citizens for the real people, and supplying the new role players with character profiles and position papers on relevant issues that simulate the previous spectrum of human decision makers. With the introduction of a hypothetical problem to be discussed by these role "actors" the game commences.

Role Playing games generally take one of two forms - either open implying relatively few rules, or closed with specific role position guidelines. The closed version is more applicable to groups who are not familiar enough with the roles to make all the policy decisions. This approach has been used in games relating to politics of developing countries. The "actors" are given role papers that specify their general policies. These position papers help all the players to understand the "givens" of each of the other roles, and at the same time, provide each player with a policy base from which to commence play.

The open, virtually rule-free form of role playing game is best suited to situations where people are playing either themselves or some role that they can easily identify with. One example placed a group of city aldermen in the role of aldermen of a small town being propositioned by a substantial subdivision developer. Each player was given instructional sheets as to what sorts of activities should be undertaken before accepting the proposal.
The participants worked through the necessary steps till a conclusion was reached; and were then told if they had indeed made the correct decisions. They thus learned about dealings with subdivision applications both by "practicing" under more clearly defined guidelines than they had previously been exposed to, and by having mistakes corrected that they may have been making in real life for years.  

The largest educational advantage of role playing is that player immersion in one role leads to a deeper understanding of that particular point of view and how that role relates to the other groups. The process is often called sensitivity analysis in that it leads to a deeper understanding of a position that the player previously had only a stereotyped impression of. This effect is maximized however, only in open games with a relatively small number of role players. Games such as "Ghetto" that places the player in the role of a negro slum tenant have proved very successful in this regard. Many middle class players find themselves committing theft and inciting riots as a result of their frustration with the role. Players in international relations games are reported as gaining true insights into American foreign policy from the point of view of a foreign diplomat's role. In addition, Boocock points out that the learning experience from role playing is further enhanced by the fact that it is still only a simulation of reality:

"Subjects can test out alternative decisions, can analyse the consequences of their actions with a certain detachment, and can make mistakes without having to pay the real-life consequences - ..."
Role playing is basically a form of simulation, and thus has many of the same teaching effects. It is particularly well suited to teaching the facts embodied in the "givens" of the various roles. It is also an excellent tool for generating an understanding of the decision making and bargaining process since it allows the player to experience other points of view. The personal commitment generated by role playing facilitates two of the prerequisites of learning. It increases the validity of the final "effect"; and through a high level of personal participation it can increase the "intensity" factor.

However, this degree of personal immersion in a role is not without its drawbacks. When carried to the extreme, the player can become so self centred that he ignores the larger issues, and thus never learns any of the broader strategies of role interaction. This problem can be circumvented by imposing rules that clearly delimit a role. If a role player is limited in the number of activities he must perform, and given position papers that comprehensively define his role, he becomes less introspective, and a better competitor in the whole game. This of course, reduces the benefits accruing to a player's in-depth "feeling" for his role. It is important then to decide what purpose role playing should fulfill, and choose between these two extremes.

To summarize this discussion, it is apparent that the three game components, competition, simulation and role playing, all contribute significantly to the teaching potential of games. However, each
promote different types of learning. All three components improve the "intensity" of participation, giving further weight to the argument that games are at least engrossing.

The competition component is very definitely the largest source of "intensity", but it has little educational value on its own. Simulation appears to be the most important single component in that it bears the greatest responsibility for "organizing" and "facilitating" the material to be taught, and ensuring proper repetition or "exercise". At the same time role playing can create a far deeper understanding, even if only for one aspect of the environment.

All three components also have teaching weaknesses and these are often exaggerated when one form is mixed with another. The conclusion remains however, that the most effective teaching game will be a subtle blend of these three elements to fully utilize their educational benefits while minimizing their failings.

RULES OF TEACHING GAME DRAFTSMANSHIP

The previous discussion in this chapter allows us to articulate several statements which together constitute a rather loose theory of game innovation. These factors briefly summarize the existing body of knowledge in gaming literature, and along with the format constraints itemized in Chapter one, establish the framework for the Planning Power Play game format.
(1) For peak teaching effectiveness a game should embody each of the three components of games - competition, simulation and role playing.

(2) Inclusion of the competitive component is essential in generating interest in players not previously concerned with the content.

In this regard:

a) A game requiring skill will create more intense player involvement.

b) Direct competition creates greater participation than indirect or showdown competition.

c) The inclusion of a small element of chance will remove the onus on loosing; and thus prevent the frustration common in purely skill competitive teaching games.

d) Rules that clearly define the game winning strategies will ensure the teaching of fundamental concepts and provide practice in decision making.

e) A continuous system of scorekeeping will accentuate correct game winning strategies by providing immediate rewards for correct actions.

f) Rules that reduce the student-teacher roles will reduce teacher interference and possible friction.
g) As the number of players increases, competition and thus player involvement decreases.

(3) Inclusion of the simulation component is essential for organizing and conveying the factual content, and for helping to create feelings of effectiveness in the players.

In this regard:

a) A simulation that clearly depicts reality ensures that the player will make the mental connection between the two.

b) Additional care must be taken to ensure the realism of a simulation when it is combined with competition to ensure that incorrect lessons are not learned.

c) A simulation that proceeds step by step will teach its lessons more effectively.

d) The subject matter of a simulation will be better learned if it is of interest to the participants previous to play.

e) The simulation should be produced so as to be adaptable to different teaching situations.

(4) Inclusion of the role playing component is essential for teaching the process of decision making (political bargaining) because it creates an understanding of the varying points of view and it generates a feeling of effectiveness.
among the players.

In this regard:

a) If there are approximately six or fewer role players, an open role playing format can engender a deep understanding of a role.

b) An open playing format will be most effective where the players are somewhat familiar with their assumed roles.

c) A closed format will be more successful when there are more than six players or where the actors are unfamiliar with their roles.

d) A closed format will reduce interference with the other game components by ensuring interaction with the other players while sacrificing detailed understanding of individual roles.
NOTES: CHAPTER TWO


7L.S. Shapley describes some modern economic applications of game theory in "The Value of the Game as a Tool in Theoretical Economics", The Rand Corporation, August 1967. (Mimeographed.)


9For further details the reader should see: Eugene Smalevsky, Solwyn Becker and Harvey Mottalch, "The Prisoners Dilemma and Ghetto Expansion", University of Chicago, 1967. (Mimeographed.)

10Boocock, Games in Learning, p.19.

11Sarane S. Boocock tested his "Legislature" and "Life Career" Games on over 1,200 youthful members of the 4-H club in 1964. They
showed that these 3 separate types of learning did occur. See e.g., "An Experimental Study of the Learning Effects of Two Games with Simulated Environments", in *Ibid.*, pp. 107-133.


15This idea is fully explained in what E.O. Schild calls a "speculative conclusion" in his games research. See, e.g., "interaction in Games," in *Ibid.*, p.94.


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23. These series of puzzles presented in a game format have been shown to increase non-English I.Q. scores by as much as 20 percent. Further information can be obtained from International Learning Corporation, 440 East Los Osos Blvd., Fort Lauderdale, Florida, 33301.


26. This game was developed in 1969 by John Volforth. Further information can be obtained from him through the Geography Department, University of British Columbia.


29. Professor Dooble has used this technique many times in seminars at Harvard on the politics of developing countries: See, e.g. "The Implementation of City and Regional Planning in Developing Countries," Harvard Department of City and Regional Planning, University of British Columbia, Spring, 1970. (Mimeographed.)

30. Robert Collier explains this game in more detail in, "Orientation Programme for Aldermen, Harrison Hot Springs, February 20-22, 1970," The School of Community and Regional Planning, University of British Columbia, Spring, 1970. (Mimeographed.)


Similar results have been reported playing the "Cities Game": See David Popoff, "The Cities Game," Psychology Today, Vol. 2, No.3 (August 1968), pp. 38-46.

32. Harold Guetzkow et al., Simulation in International Relations:
NOTES: CHAPTER TWO CONTINUED


33 Sarane S. Boocock, "From Luxury Item," in Games in Learning, p.59.
CHAPTER THREE

A SUMMARY OF SOME SUCCESSFUL TEACHING GAMES

Chapter two explored the criteria for successful teaching games. This chapter we will briefly examine a few of the presently successful games with two purposes in mind:

1) to act as a review of the previous discussion by showing the game structures presently used to attain stated teaching objectives. In this regard we will also survey the groups that are presently using educational gaming and

2) to examine these games in view of our format constraints as stated in Chapter one.

Table One will be the central focus of this discussion. The ten games were chosen because of their teaching success in various fields. The predominance of planning games reflects the bias of this examination rather than an indication of the number of eligible games in each field. The descriptive catagories were chosen to correspond generally with the Planning Power Play game requisites. The ideal objectives of Planning Power Play stemming from the preceding rules of game draftsmanship and the game purposes and format constraints of Chapter one are listed in column one to facilitate comparison between existing games and these requisites.
Teaching games are being used in four subject area spheres worthy of note.

1) Business Administration.

2) International Politics.

3) Social Science (primarily teaching games for elementary and high school students.

4) Urban Planning.

Business Games

Business games started with the simple case approach used originally in law classes where a realistic problem was presented to the class as a focus of discussion. Recently however, aided by the computer, these games have developed into very complex simulations in which role players can test alternative courses of action. Table One does not describe an example, but the "City II" game shares most of their common characteristics.

Business management has found gaming particularly useful for improving the decision making ability of their trainees. The Didactic Game Co. specializes in producing games designed to meet this need, (See Appendix I), and many others are produced every year by the major corporations and business schools. In terms of teaching factual content, they feel that the interest generated by game playing does help teach new details; but they conclude that gaming is best suited to teaching basic concepts and for a review of previously learned material to uncover gaps in basic understanding.
Political Science Games

Political Science teaching games have also enjoyed increasing popularity since the advent of the computer simulation. There are very few strict theories or formulas to teach in this science, yet real-life experience in the field is impossible and/or dangerous. Gaming provides a hitherto infeasible opportunity to understand the field while experiencing it in simplified simulations. The "Inter Nation Simulation"\(^2\) game (See Table One) is one of the more sophisticated examples of political science games. Its long playing time makes it less effective for normal teaching, but its inventor feels that it may serve a valid research purpose as well. "Inter Nation Simulation" employs a complex computer simulation of the existing international political realm. The eight players assume roles, and their decisions on a hypothetical issue are fed into this model. The computer assesses the ramifications of the decisions on the original setting or background, and prints out a profile of the altered environment. In this manner the players see their environment vary as the result of their actions. The roles compete, and each role actor is relatively free to make any decision he wishes; but because everything is so directly related to the computer model, the game must be considered primarily as a simulation.

Harold Guetzkow has found that this game and others in the field have fostered the teaching of political science in four ways.\(^3\)

1) They have heightened interest in the subject matter.
2) Through organization they have helped to illuminate previous readings in the field.

3) By simplifying the real world they have allowed students to home in on one concept without distractions.

4) By allowing students to experience the situations, the game created a feeling of effectiveness and an ability to deal with subjects not previously familiar.

Political science games are also being produced for teaching in elementary and high schools. "Dangerous Parallel" is one such game now available to high schools in kit form for approximately sixty dollars. This game presents a simulation of the political pressures that led to the Korean War. Its computer simulation model was simplified to the extent that all the variables could be incorporated into a system of events cards and position papers and included in a kit. It thus presents a full variable background type of simulation similar to the "Inter Nation Simulation" in a highly portable and easily played format.

"Dangerous Parallel" however, gives much greater freedom to the individual role actor, and thus teaches a far deeper personal understanding of the individual positions. The game has proven to be an immensely successful teaching game for teenagers and adults; and has succeeded in demonstrating the overall political bargaining process leading to war along with the detailed role knowledge fostered by role playing. It should be added however, that it took a team of experts over six years to develop the final product.
Social Science Games

Social Science Games have served a purpose similar to that in political science - to experience simplified reality in a field of study where real life experience is infeasible.

"... such games pluck out of social life generally ... a circumscribed area, and attempt to reconstruct the principle rules by which behaviour in this arena is governed and the principle rewards that it holds for the participants." 5

The majority of these teaching games have been developed for elementary and high school students, and combine role playing and simulation elements. The "Life Career Game", the "Parent Child Game" and the "Sunshine Game" which simulates existing racial problems in a typical American city, are a few of the examples described briefly in Appendix I.

The game "Simsoc" 6 (Simulated Society) is one of the more energetic social science teaching games for high school and university students (See Table One). It allows students playing designated roles to create their own society and to live within it. It has many middle class values built into the fixed setting (i.e. a player "dies" if unemployed for two rounds); but it does demonstrate why society must have some agencies of social control. The game is predominantly a role playing exercise, but the competitive format and the simulated background embodied in the rules encourage a student awareness of the whole society of which his role is one part. The role playing component does however produce one teaching drawback of "Simsoc". The freedom of the role
players necessitates a game supervisor skilled in group dynamics to encourage participation and to settle role disputes; and such people are fairly rare, especially in planning offices.

"The Cities Game" (See Table One) does not necessitate a game leader at all; but it only instructs four people at a time. It has been included as a social science game because it emphasizes the ghetto riot issue of the "haves" versus the "have nots" in the political bargaining process, and because it was invented by a psychologist. Four roles (Business, Government, Slum Dwellers and Agitators) compete for power. At the same time, the simulation built into the game board determines how the city will develop as a result of their power struggles. The simulation is arranged so that no team can win and the city cannot develop without riots unless the teams cooperate which of course involves the "haves" (Business and Government) sharing their larger initial dollar resources with the "have nots". In this way the game becomes a very effective device to teach the necessity for cooperation in political bargaining.

"The Cities Game" shows great similarity to the requisites for Planning Power Play. It is simple to play, highly portable, deals with political decision making, and utilizes a mixture of game components that provide an entertaining and very educational experience. However, it does not touch on the issue of local area interests versus citywide concerns that is to be fundamental in Planning Power Play. In addition its game board format is unsuitable for groups of over six persons, and
Planning Power Play should involve at least eight players representing eight different points of view.

**Urban Planning Games**

The use of gaming in urban planning enjoys a shorter history than in other fields, and closely parallels the development of computers in the last decade. The "Cornell Land Use Game" developed from 1963-66 was the first sophisticated planning game developed for teaching and led the way to the innovation of computer simulation planning games. There are still relatively few community planning games, and most of these were developed by American planning schools for the education of students and professional planners.

The schools have found the games to be excellent teaching aids for much the same reason as the social and political scientists. They have provided safe laboratories for experiencing an otherwise difficult to observe field of study, and they have generated increased interest in the subject area among players.

Most of the games, because they have been used only for university teaching purposes, are complex in nature requiring sophisticated, unportable game props and long playing times. Four of the six planning games in Table One require a computer or other expensive and non-portable facilities. Of the six games listed in Table One, only one game can be played in less than four hours and several require over ten hours to complete. These characteristics alone would appear to indicate the
incompatibility of most existing planning games with the requisites for Planning Power Play.

The point of view of the subject matter presented in existing planning games is also generally quite different from that required for Planning Power Play. The majority of the games are concerned with explaining the development of the physical environment in which planners work. Planning interest historically has been concerned with the city-wide point of view; and as a result, planning games have emphasized the teaching of broad planning principles applicable to urban areas as a whole. Several games have included the diversity of local interest groups as one consideration in citywide planning; but very few have placed the emphasis on the development of a local area, and the interaction of these local interests with the citywide concerns. This local area emphasis is to be the concern of Planning Power Play, and clearly distinguishes it from existing games. A brief description of the planning games in Table One will clarify these assertions.

"Trade-Off" (See Table One) is an exception to the above statements insomuch as it is an easy to play game designed specifically for citizen involvement as opposed to planning students; and it is concerned with the local area rather than the entire city. "Trade-Off" was designed to be played on the street corners of slum neighbourhoods to show residents of that area the financial constraints on new development of their ghetto. The one participant is expected to distribute styrafoam blocks, each of which represent a type of building of a given dollar value, on a map of his area. He is then asked to repeat the procedure but with
fewer dollar resources and thus fewer building blocks. The participant and spectators learn through experience to identify which of the developments or combinations of developments they would attach the highest priorities to, given their monetary value and a budget constraint. "Trade-Off" has been shown to be an effective teaching device in informal situations. However, this format is only applicable to a process of physical development where one role decides all questions in an oversimplified non-political world. It would not be adequate for the purpose of teaching the roles involved in the process of political decision making as is the objective of Planning Power Play.

The "Cornell Land Use Game" (C.L.U.G.)⁹ (See Table One) exhibits the same weakness in that it includes only one role position. In addition it is a much more complex exercise that takes up to ten hours to play making it impractical for citizen involvement despite the fact that it is highly portable. C.L.U.G. is a citywide economic development game. It resembles Monopoly in that each player represents a developer whose goal is to develop the city for maximum dollar profit. Basic constraints relevant to urban planning are imposed on the developers through the game board and rules so that the participants learn these principles of urban planning from experiencing them as mock developers. Due to its high level of competition and the clarity of its simulated planning requirements, C.L.U.G. is a very stimulating and educational game. Games similar to it in format have attempted to broaden its purely economic development subject matter. However, the playing time involved, the small number of participants, and
the inability to consider both local and citywide interests within this format, make it an unacceptable model for Planning Power Play.

"Build"\(^{11}\) (See Table One) is one of the more recent and more complex computer simulation games that disqualify themselves for our purposes because of their long playing times and extremely unportable props. This game does however, centre its attention on the local neighbourhood and its interaction with the citywide interest. It utilizes controlled role playing by specifying the positions of fourteen actors including residents such as local agitators, parents and workers, business interests both local and citywide, and government heads such as the mayor, board of education or the social planning department. The roles interact against a variable simulated environment of a run-down neighbourhood with the purpose of improving the area for the residents. The game does not emphasize the political bargaining process, but its success in using this many roles is very relevant to Planning Power Play even if the complexity of the computer simulation makes the game format impractical.

"Urbcom"\(^{12}\) (See Table One) is also of interest because of its large number of role players. This game minimizes the simulation of the physical environment in favour of providing a sophisticated role playing forum in which twenty-two role actors bargain directly over one issue in urban development while attempting to better their own positions. The positions representing government, business and resident groups in different areas of the city are relatively closed with detailed position
papers telling the actors how to react to taxation or other issues. This large scale competitive role playing format seems ideally suited to the Planning Power Play requisites. However "Urbcom" deals with citywide issues and the local group reaction to them and is thus intended for citywide planners, rather than for local citizens. This emphasis would have to be reversed to be relevant to the needs of Planning Power Play. In addition, the long playing time and the extensive facilities make this particular game impractical for our purposes.

"City II"13 and "Metropolis"14 (See Table One) can be grouped for the purposes of this review. Both are complex games of long duration requiring a computer simulation model of a city. In both, a few role players introduce their decision into the simulation and as a result of the computer print out, an urban area develops and alters. The two games give only minor importance to the role playing or competition components, in the process of simulating a citywide development process. "City II" and "Metropolis" have been useful teaching devices for graduate planning students and professional planners, but their complex formats and citywide planning emphasis make them unsuitable for Planning Power Play.

Summary

These examples exhibited a wide variety of formats corresponding to the diversity of teaching purposes and available facilities.
The requisites for Planning Power Play seemed better accommodated by the political and social science games insomuch as these games combined the simulation of the human and physical environment to good effect even if the subject matter was unrelated to neighbourhood planning.

The planning games were either too complex to operate or too simplified in content for our purposes. "Trade-Off" and "C.L.U.G." were easy to administer but virtually neglected the role playing component and taught only the simple lessons of urban physical development. "Build" and "Urbcom" attempted to include a diversity of role players and thus examined the political bargaining process in greater detail; but they were too long to play and too difficult to set up for local citizen education. In addition "Urbcom" concentrated on the citywide issues at the expense of the local area.

None of the game formats then, were directly applicable to the needs of Planning Power Play. However, these observations did substantiate the view that complex simulations alone such as in "City II" or "Metropolis" are not sufficient. The discussion makes it clear that innovation of a unique format is necessary for the Planning Power Play series of games. On the other hand, the literature provided examples of successful game formats, parts of which may be applicable in different combinations to the Planning Power Play format. This review of existing games will then, be extremely beneficial to the discussion in the following chapter.
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<td>Proposed Interests</td>
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<td>10-30 hours</td>
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<td>10-30 hours</td>
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<td>1 hour</td>
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3Harold Gueltzkow describes the results of post-game questionnaires in Simulation in International Relations, pp.152-4.

4"Dangerous Parallel" was developed over six years by the Foreign Policy Association and Abt Associates Ltd. It was copyrighted in 1969 by Scott, Foresman and Company; and is sold to schools for approximately sixty dollars. For further information contact the Foreign Policy Association, 345 East 46th Street, New York, 10017.


6William A. Gamson, Simsoc-Simulated Society (Participants Manual).


10"New Town" is one example of a land economics game resembling
C.L.U.G. that introduces the public sector into the development game as a spokesman for human needs and in opposition to the dollar motive of the developer; See Barry R. Lawson, New Town Instruction Booklet (by the author, 1969).

11 The game is briefly described by the editor of the National Gaming Council, The Game Newsletter, Vol.1, No.2 (June-July, 1969), p.2. The game is put out by the Dentrel Institute of Technology.

Urbcom is introduced by the editor of the National Gaming Council, The Gaming Newsletter, Vol.1, No.3 (Sept-Oct., 1969), p.4. Further inquiries may be forwarded to Dr. Dean, Director of Kent State University's Environmental Simulation Laboratory.


CHAPTER FOUR

PLANNING POWER PLAY: A NEW TEACHING GAME FOR LOCAL AREA PLANNING

"Games design is not only not a science, it is hardly a craft, but rather an "art" in the sense that we have no explicit rules to transmit. 1

Despite this rather ominous statement by one of the most prominent contemporary game formulators, the present chapter will attempt to demonstrate how the rules of teaching game draftsmanship specified in Chapter two can be applied to the formulation of the Planning Power Play game format. The experiences of the author substantiate the fact that these rules by no means form a precise formula for developing a successful game, and that the ultimate test comes only when the game is played. However, these rules do constitute an invaluable initial step in establishing game design as at least a "craft" even if not yet a "science".

THE PLANNING POWER PLAY FORMAT

A Brief Description

The general format described below is common to several games produced by the author in the search for a successful final product. The format provides an opportunity for residents of a local area to experience the political bargaining process that is instrumental in
determining the future of their neighbourhood. In this regard the game format is intended to promote awareness of the multiplicity of interest groups, both local and citywide, that participate in this quasi political arena; and to demonstrate how the local residents can be most effective in it.

The game format presents a series of apparently local development issues which are decided upon through the political bargaining process. The players have full knowledge of all issues from the outset of the game to allow them to plan ahead.

Teams of players, each representing an interest group from the local area (e.g., the Dunbar Businessmen's Association) or from the city as a whole (e.g., the development and construction interests), possess varying amounts of "power units" which they can use to support or defeat the issues. Their positions and sources of power are explained in introductory role papers that each interest group reads aloud at the outset of the game.

As each issue arises in turn, the interest groups inform the other participants publicly through the reading of "commitment papers" how they must stand on this issue and why. On any one issue approximately one third of the interest groups (measured by initial "power units") are committed to vote in favour, one third to vote against, and one third are left in an indifferent position and able to lend their support to either side.
The players separate into two opposing camps with the indifferent groups encouraged to join whichever coalition offers them the most attractive bargain. Both coalitions then decide in secrecy how many "power units" they will collectively vote in their attempt to win this issue. The position papers are engineered to ensure that equally powerful groups of teams are initially committed to vote for each side. The final outcome is thus dependent on two factors requiring the bargaining skill of the players:

1) how many of the indifferent teams can be solicited to support any existing coalition, and

2) how many "power units" each member of the coalition will be willing to contribute to the cause given his own personal success goals.

At the "City Hall Showdown" the game supervisor, acting as a democratically responsive mayor, collects and counts the votes or "power units" and decides the issue in favour or against. A tie vote is considered as an example of political deadlock in which nothing is accomplished, so that the coalition against the issue is declared winner.

The interest group teams compete to win the game by amassing the greatest number of success points in the final game version - or money in the earlier versions. Success points are the reward to a team for winning an issue that they are committed to vote for. Thus
the players use "power units" in the same manner as votes to win success points in the political bargaining arena. The issues and role commitments are so arranged that each team will find itself in coalition with most of its opponents at some stage in the game so that the strategies for cooperation or intentional interference with other interest groups are practically infinite.

A Format To Fit The Theory

This format provides an almost equal emphasis on the three components of teaching games. There is a direct form of competition based on the bargaining skill of the players. The level of competition is emphasized somewhat in an effort to overcome the loss of interest common among medium sized groups. In addition, the game format can be played in a relatively short time (two hours), and it is easy to learn even for novice game players. It is also extremely portable and adaptable to a wide variety of physical settings.

The simulation component is apparent in the initial setting which portrays both the political arena in terms of its role actors and the rules of political bargaining, and the local area of Dunbar represented by a large map board upon which the physical ramifications of the political decisions are symbolically represented. The Planning Power Play format also includes role playing with each team representing a different interest group. However, the players' involvement with their roles which can be detrimental to the learning of the overall game structure is minimized
through position papers that explicitly define their views and vote commitments. At the same time the public reading of these position papers is the primary means of transmitting the fact to be learned in the game playing process to the rest of the players.

**FIRST ATTEMPTS TO FORMULATE A GAME**

The Planning Power Play format described above seems to constitute a satisfactory framework to guide development of a Planning Power Play game. However, the task of developing a specific game was formidable. Three versions were played and tested before the desired results were obtained, and additional versions exist in the mind of the author that might constitute still further improvements\(^2\).

**The Original Version**

The original version of the game displayed all the weaknesses of the stereotyped first attempt.\(^3\) It overemphasized the competitive aspects by a system of monetary rewards that virtually eliminated the teaching potential. In addition, it attempted to teach too many things through an overly detailed simulation of reality with the result that it required almost ten hours to play. This game, as will be mentioned in Chapter six, has some potential for long term teaching situations if altered in fairly minor ways; but its playing time made it unsuitable for the purposes of this enquiry. This initial venture did however indicate that the Planning Power Play format was workable, and an abbreviated version of the
original was developed in less than one day using many of the same props but with a playing duration of less than two and one-half hours.

A Second Version

The second version of Planning Power Play reduced the fourteen original issues that came up by chance during eight time periods or rounds of play to two issues that came up in order and with complete certainty. The written summary of these two issues, intended to be read by the game supervisor at the outset of each round of bargaining, are reproduced in Appendix II-a along with a summary of the rules in Appendix II-f, and a sample of some of the position papers in Appendix II-c.

Fourteen teams representing both local and citywide resident, business and government interest groups (See Appendix II-b for a list) competed to amass the largest number of "Dunbar Dollars". Each team started with five hundred "Dunbar Dollars" of bargaining money and a varying number of "power units" with which to implement or turn down the two issues. Interest groups received a bonus of "Dunbar Dollars" if they successfully influenced the outcome of the issue.

All fourteen teams had a "commitment paper" for each of the issues (See Appendix II-d for samples of these). Each team was required to read its paper previous to each bargaining round and to adhere to its prescribed limitations. The commitment papers specified three things.

1) Whether the team was committed to vote for or against the issue, or whether it could remain indifferent-and why.
2) The minimum number of "power units" that the group must vote if it was committed to either of the coalitions.

3) The number of "Dunbar Dollars" they would receive if the issue was decided in accordance with their stand.

Coalitions were formed in favour and against the issue and a great many deals were perpetrated to attract indifferent teams to join the coalition and to convince the members of a coalition to contribute more than their specified minimum number of power units to the common cause. The necessity for such bargaining was ensured by allotting each role different numbers of "power units", and by rewarding them with varying amounts of "Dunbar Dollars" for winning an issue. Thus, the team that stood to gain a large bonus if the coalition won was usually persuaded to share its reward with less fortunate members of the coalition in return for additional votes to aid the common cause.

Weaknesses As A Teaching Game

The second version of Planning Power Play was considered as very entertaining by the players, but as the findings in Chapter five attest, three basic flaws became apparent that prevented it from being an entirely effective teaching device.

Firstly, it was found that too much emphasis had been placed on "Dunbar Dollars" as the criterion for success. This was introduced on the supposition that a simple exchange of money for power was familiar to
people and would thus simplify and speed up the game playing process. However, it was found that for many players the inclusion of money obliterated all other considerations even to the extent that some players forgot who they were bargaining with to gain the money, what development was being discussed, and even what role they were portraying. All too often the proverbial dollar ruled with the result that the competitive aspect dominated the game to the exclusion of any possible learning through the simulation or role playing experiences.

The second major difficulty in the game arose from the large number of interest groups. There was little argument that the distinctions made were valid, and the larger number facilitated the maintainence of involvement among a fairly large group of people since each of the fourteen had their own responsibilities. However, most players found it difficult to keep all fourteen positions clear in their minds which again contributed to player disinterest concerning which role they were bargaining with. The large number of active participants also considerably slowed down the bargaining process and thus led to the necessity of playing only two rounds.

The final fault with this second version of Planning Power Play stemmed from the fact that only two rounds could be played within the two hours. To a large extent the outcome of the second round was predetermined by what had occurred in round one. Thus the player who learned from a mistake in round one never got the chance to test out his altered strategy in another similar issue. A second problem resulting from the small number of rounds was that it was virtually impossible to ensure each of the fourteen roles an equal chance of winning. It was found in addition that one cause of inequality had been inadvertently built into the game
through an unequal distribution of monetary rewards. However, even with this corrected, many roles were still left with a much more difficult bargaining position.

The first two versions of Planning Power Play were then, somewhat less than a success when judged by the criteria of effective teaching games. They were however, effective competitive games and they substantiated the premise that the Planning Power Play format was a potentially valuable framework. Most importantly they accentuated three basic weaknesses that were capable of correction with relative ease to produce the final version.

THE FINAL VERSION

Some Changes Made

The final version of Planning Power Play corrects many of the earlier faults. The changes are apparent in the detailed game rules in Appendix III-f, but a brief summary of the major adjustments is justified here. The number of interest groups in the final version is reduced to eight while still representing local and citywide resident, government and business interests. This reduction limits the usefulness of the game for groups larger than thirty two, but it encourages greater learning among those participating, and it contributes to a faster playing time. This in turn allows for an increase in the number of issues and thus the number of rounds of play. The final version has four issues coming up in a fixed order and decided upon by the same political bargaining process.
Copies of the four issues to be read by the game instructor appear in Appendix III-a. In addition, the criterion of winning is changed from "Dunbar Dollars" to personal "success points" which in turn necessitates several changes in the game playing procedure.

In this final version of Planning Power Play the "commitment papers" state only how the team is to vote - in favour, against or indifferent. The team is not given a minimum vote commitment or a statement of possible rewards. Instead, each team decides for itself how many success points it will amass for winning the issues it is committed to. Each team is given a "Summary Sheet" (See Appendix III-b) on which are listed all the interest groups, all four of the issues, and the committed position each group has on each issue. This sheet allows each player to see how every other participant will stand on the four issues, and is thus vital for all strategy planning.

Using this summary sheet the players make up their own success formulas by assigning thirty potential success points to the two or three issues they are committed to vote on. These potential success points become a reality during the game if the issue is decided in accordance with the teams' committed stand. The team that achieves the greatest number of its points - or all thirty - is the winner.

This system dictates a different rationale for bargaining. The success formula of each team is secret so that although the coalition members know who must vote the minimum of one power unit (i.e. who is committed to vote for the issue), they do not know with certainty which
team has the most to win from this particular issue. This becomes less
of a mystery as the game progresses because a running tally of team
scores is publicly displayed after each round; but it still acts as a cata-
lyst to encourage players to interact in the hope of discovering their
opponents' priorities.

This system also changes the process of convincing the indifferent
groups to join a coalition. In the absence of money the only incentive
to an indifferent player to support a coalition is the promise of future
support from its members. Written promises of future support are ex-
changed for help on a current issue and penalties accrue to those that don't
keep their word. This system then, ensures that the players are aware of
who they are bargaining with. Even the fact that indifferent groups are
allowed to make contracts with members of both coalitions does not detract
from this.

These changes improve Planning Power Play by speeding up the
game playing process and by allowing for a greater number of issues to be
played. At the same time the change from money to success points encour-
age role players to interact more with each other and thus learn more
about each others' positions.

THE THEORY COMES TO LIFE

As alluded to previously, the author feels that much of the
success of this game in meeting its stated objectives is attributable to
the soundness of the theory it was based on. This section will summarize
the final version of Planning Power Play using the requisites articulated in Table One as a guide in order to:

a) demonstrate the compatibility of this game with the predetermined requisites, and

b) to show how the game adheres to the rules of teaching game draftsmanship articulated in Chapter two.

Subject Area. Planning Power Play deals with the political decision making process and its affects on local residential areas.

Geographic Scope. The citywide political process is simulated, but the major emphasis is on one local area and its relationship to the citywide interest groups. This emphasis is achieved by using local development issues as the central focus of bargaining.

Intended Participants. The game was specifically designed for playing with the residents of the middle class, single family residential community of Dunbar. As a result it includes data and issues relevant to this area.

Learning And Playing Time. With an average group of residents it is necessary to spend about fifteen minutes to introduce the initial game setting and to acquaint the players with the rules. However, each team reads their introductory role papers during this time period so that active player participation starts almost immediately. The first round takes almost forty five minutes to play, but the rate increases as players
become more familiar with the procedures. Most game sessions including instruction, playing, and post-game discussion last about two and one-half hours.

Number Of Players. Planning Power Play can be played by eight to thirty persons. The game has proven successful with single player teams but tests indicate that it is most effective with two or three people per team (14-24 participants) because of the diversity of tasks required from each team. For this reason it is felt that four members per team could play the game with minimal loss of player involvement. A suggested list of team duties is included in Appendix III-e.

Game Supervisor. One person with knowledge of the rules can run Planning Power Play. Some knowledge of the planning issues involved would aid post-game discussion but no skill in group dynamics is necessary.

Necessary Props. Appendix III-g contains a complete list of game props. They are all extremely portable and capable of being transported and set up by one person. The plywood map board measures two feet by three feet; the issue cards are paperboard and less than two feet square, and the numerous position papers and tally sheets fit very easily into the supervisor's attache case. The game can be played in three small rooms or any large room divisible into three areas to provide for a central conference area and two somewhat private strategy centres.

Teaching Objectives. The game is structured to satisfy the three prime educational goals.
(1) Eight points of view are presented by the eight interest groups. Introductory role papers and commitment papers on each issue introduce the participants to the different opinions held by the various groups, and show how each has the power to influence the development of the local area.

(2) The simulation of the political arena allows the players to experience a facsimile of the political bargaining process, and hopefully to gain a feeling of effectiveness in this realm.

(3) The game board showing the final physical results of the bargaining process can become the focus for a discussion over the disadvantages of this issue-by-issue crisis approach to planning where the outcome of each development is solely contingent upon the prevailing political climate.

These three teaching objectives are catered to through a combination of the competition, simulation and role playing components.

**Competition.** To ensure a high level of participation the game involves direct competition in so much as the players can interfere with each others' strategies. In this regard also, the game primarily requires skill to win. There is no chance factor included, but the onus on losing is reduced because the player never has complete knowledge of his opponents' success formula, and losing can always be attributed to
an unlucky guess about his opponent's strategy.

The game is straightforward enough to be enjoyed by game playing novices; yet at the same time there are an almost infinite number of possible strategies and alliances to occupy the energetic player or team of players.

The number of teams is reduced to a minimum to assist in maintaining a high degree of interest among a fairly large group of people.

The game supervisor is largely just another role player (the mayor at City Hall), and thus is perceived as one of the players rather than a teacher.

A running score tally is recorded at the end of each round to ensure immediate rewards and punishments that accentuate the game winning strategies and maintain a keen competitive mood.

Simulation. Planning Power Play presents a simplified facsimile of both the political bargaining process, and the local area affected by the decisions reached through this process. The initial setting describing the various groups influencing city hall on ad hoc issues introduces the players to the political bargaining process. The introductory role papers stating why each group is concerned and where they derive their power constitute the primary device for teaching the players these factual details. In a further attempt to introduce realism the interest groups are given varying amounts of initial "power units" despite the problems this entails in assuring that each team then has an equal
chance of winning. The game also allows for more than one winner as is often the case in real life.

The local area of Dunbar is depicted through the land use map board of the area, and the physical ramifications of the political decision making process are symbolically portrayed on it. In addition, data relevant to Dunbar is used throughout the game on the assumption that the residents would learn more quickly if the setting was familiar to them. This fact tends to limit the usefulness of the game to this or other similar local areas; but the game format is designed so that the simulation may be retooled to fit another situation with a minimum of effort.

The format of Planning Power Play adopting an issue-by-issue approach aids in organizing the subject matter of the simulation. Players proceed in a step-by-step fashion with each issue demonstrating slightly new lessons and reviewing previous ones.

Role Playing. Planning Power Play uses a closed role playing procedure in so much as the role positions are explicitly set forth by means of introductory role papers and specific commitment papers for each issue (See Appendix III-c and III-d for samples of each of these).

This approach is partially necessitated by the large number of participants, and partially by the fact that the game is to be played with local area citizens who for the most part are not able to bring with them any deep commitment to, or knowledge of, a role. It is the intent
of these specific position papers to aid in guiding the game action in a manner close to reality, and to educate all the players as to the positions that any one body concerned with the neighbourhood will take. A closed procedure does of course, result in some loss of specificity, and it prevents detailed knowledge of any one role: but the sacrifice is worthwhile in light of the savings in playing time, the reduction of interference with the other game components, and the fact that the teaching objective of the game is a general knowledge of the interrelationships between roles rather than a deep understanding of the roles themselves.

**Summary.** The above discussion would indicate that Planning Power Play is a successful teaching game. Both the general format and the specific game satisfied the requisites specified in Chapter one by providing a highly portable, easy to operate and play teaching game. The game also conforms to the principles of good draftsmanship as specified in Chapter two by fully utilizing all three game components.

However, as was stated at the outset of this chapter, the ultimate test of a game's teaching success comes only when it is played. The next chapter will explain how Planning Power Play was tested and will comment on whether the game produced the results that the theory suggests it is capable of.
NOTES: CHAPTER FOUR


2Three possible alterations to the format meriting future study are suggested by the author in Chapter six of this thesis.

3A detailed description of the original version of Planning Power Play is not included here or in the appendices since it is substantially the same as the second version described in Appendix II. The original version differed only in being considerably more complex with fourteen possible issues some of which could repeat to create for example, two or three apartment developments during the course of the game.
CHAPTER FIVE

PLAYING THE GAME: A TEST OF EFFECTIVENESS

THE TESTING PROCEDURE

Some Initial Limitations

The rigorous testing of games has remained a virtually neglected
field. Sarane S. Boocock, one of the most experienced game formulators
and co-editor of the most extensively documented book on the learning
effects of gaming, says that in games, "we have a technology which works -
but we don't really know why." One cause of this shortcoming may be
that when a game is successful it is immediately apparent to all concerned
so that the extensive testing required to prove its effectiveness and to
determine the reasons for its success are deemed unnecessary. Even the
normally efficient field of business has done little to test their teach­
ing games. Paul S. Greenlaw admitted that, "to date, such studies of
business games have been few, ..." and as a consequence, his attempt to
test the effectiveness of modern business games relied on a survey of the
subjective evaluations of persons who had administered the games.

To rigorously test a game three variables of the testing pro­
cedure must be considered:

1) the game - its format and rules,

2) the testing method and testing tools, and
3) the people playing the game.

Thus, for example, to compare the effectiveness of two game versions each game should be played a minimum of six times with similar participants and tested with similar testing devices to generate a large enough body of data to yield scientifically valid results.

This procedure was beyond the time constraints of this examination for the same reasons that it was beyond the means of most of the existing game formulators. Instead this examination utilized the two month testing period to initiate an exploratory approach to the testing of the game involving the manipulation of all three testing variables.

The primary goal of this project was to develop a workable teaching game. This emphasis necessitated altering the game as shortcomings were discovered; and as a result no one version of the game was ever played sufficient times to scientifically test its validity.

At the same time the form of the testing tool was altered during the five tests so that the results can not be compared in all respects. These changes were necessitated by three factors.

1) The changing game format dictated changes in the test.

2) The emphasis on what was to be tested changed as the game format improved. The initial emphasis was on testing whether the game satisfied the format constraints and whether it functioned as the theory stated
it should. However, as the game approached a more final form the additional concern about whether the game was an effective teaching device became feasible to test.

3) The questionnaire format was itself being tested and improved as the process continued.

In addition the third variable, the participants, was varied during the testing process. This was done partly through design to test the effect of the game on a variety of people, and partly through necessity since it was virtually impossible in the limited time available to set up test sessions with groups of citizens with similar backgrounds.

As a result of this constantly changing mix of variables, the observations and findings reported in the following sections of this chapter will not constitute statistically valid statements about any one game version with any one group of players. Instead, the chapter will present initial statements or insights based on the results of individual tests and on non statistical comparisons between individual tests.

Summary Of Procedure

The testing procedure was not as ad hoc as the previous discussion might have implied. Although time mitigated against repeated tests of one format a serious attempt was made to control the variables for each test
to facilitate comparisons between test sessions. Table II outlines the tests completed and the mix of variables in each. The versions of Planning Power Play referred to, were described in Chapter four. The variety of players and testing devices will be described below.

Test number one (See Table II) was intended as a pre-test for the first version of both the questionnaire and the game prior to the test with the citizen group the following evening. The planning students were used because they were relatively available and close enough friends to readily offer verbal criticisms of the game. This experience made it clear that significant changes both to the game and the testing device were needed. This test served an invaluable purpose for pointing out several not-so-minor errors; but because of the subsequent changes to both the game and the questionnaire these results were of no use for comparison to later tests and thus are not included in Table III.

The second test was held at the Dunbar Community Center as part of a local residents planning course. This group was typical of the people the game was specifically designed for. The game had been significantly altered however, so that this session in fact constituted an initial test for version two. In addition, the questionnaire was altered to conform to the new game and to include some changes suggested by its initial test. Again however, it was a verbal questionnaire in which the respondents were asked to write down brief answers (often "yes" or "no") to questions posed by the game supervisor.
TABLE II

Summary Of Game Tests

<table>
<thead>
<tr>
<th>Test No.</th>
<th>Date of Test</th>
<th>Game Version Played</th>
<th>Participants</th>
<th>Testing Device Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb.1</td>
<td>Version one</td>
<td>2nd year planning students and their wives</td>
<td>First verbal questionnaire</td>
</tr>
<tr>
<td>2</td>
<td>Feb.2</td>
<td>Version two</td>
<td>Dunbar residents attending a local area planning course</td>
<td>Second verbal questionnaire</td>
</tr>
<tr>
<td>3</td>
<td>March 1</td>
<td>Version two</td>
<td>First year planning students and their wives</td>
<td>Printed questionnaire altered to fit this game</td>
</tr>
<tr>
<td>4</td>
<td>March 1</td>
<td>Final version</td>
<td>First year planning students and their wives</td>
<td>Printed questionnaire and retention quiz</td>
</tr>
<tr>
<td>5</td>
<td>Mar.10</td>
<td>Final version (slight alterations from test 4)</td>
<td>Social Work students</td>
<td>Printed questionnaire and retention quiz</td>
</tr>
</tbody>
</table>
The third and fourth tests were held on the same day with one group of participants from the first year planning course playing version two and what turned out to be the final version of Planning Power Play. The same questionnaire was used to test both games in so far as it would apply to both. By keeping two of the variables constant it was hoped to compare the relative merits of the two game versions. Some wives of the students were included in the tests, but they showed virtually the same reactions as their spouses. Planning students were again used largely because they were available and willing to spend nearly a whole day playing and discussing the two games - something that no citizen group was prepared to volunteer for. In addition, the planning students constituted a knowledgeable group probably better equipped to offer constructive criticism on the planning aspects of the two games.

Session three also provided a chance to compare the reactions to the second version game from the planning students and the citizens group. The testing tool had changed slightly but some comparisons were still possible.

Session five provided the opportunity to test the final game version using the final testing tools on a group of persons closely resembling the resident group of Dunbar - Social Work students from the University of British Columbia. This test was intended to accomplish three tasks.

1) To allow one more test of the final game version to determine its operational success and teaching effectiveness.
2) To compare these results with those of test four using planning students. A similar questionnaire was used and the game format was largely the same.

3) To compare these results of the final game version with the other citizen group test of game version two. This comparison was tenuous however because the questionnaire was somewhat altered and this group did not share a perfectly similar player background with the Dunbar residents group.

THE TESTING TOOLS

All of the testing was done by means of post-game discussions with the players (often tape recorded) and post-game questionnaires. The pre and post-game questionnaire method was not feasible for the relatively informal teaching sessions that this game was intended for. This made it more difficult to directly assess the changes in attitudes or increases in knowledge resulting from playing this game.

As mentioned above, the questionnaire was altered twice before a final version was put in printed form. The first two versions were administered verbally to the entire group as a test for game versions one and two. The final questionnaire with its retention quiz section was designed specifically for the final version of Planning Power Play. Our discussion will center on this final testing tool from which reference
can be made to the earlier tentative versions.

A copy of the questionnaire and the retention quiz are included in Appendices IV-a and IV-b respectively. This two part questionnaire had four distinct areas of concern.

(1) The People Playing The Game. It was considered necessary to determine the general age, sex and occupational characteristics of the players to help identify groups that benefited most from the game playing experience. Questions were also asked to determine the previous game playing experience of the players. These questions were included in all versions of the questionnaire and some tentative conclusions were drawn as a result of the five tests.

(2) The Game Structure. Several questions were included to allow the players to comment on any game weaknesses that they perceived. Each player was asked when he felt he learned the game, whether he considered the position papers to be realistic and whether he felt that he had an equal opportunity to win. The first two questions were also asked in the verbal versions so that comparisons were possible. Questions were also included to ascertain the respondent's role, the number playing that role, and the team score achieved, to allow the game inventor to judge the relationship between these factors and perceived faults in the game. The responses to these questions were a great help in determining weaknesses in the game structure (i.e. where the game did not conform to the theoretical ideal), and possible role inequalities such as occurred in the second version.
(3) The Interest Generated. Questions asking whether the game was entertaining, whether the player found that he concentrated on the first round of play, and whether this concentration level was maintained were posed in the second verbal and printed versions of the questionnaire. The intent of this series was to provide an indirect index of the learning potential of the games. Backed by the theory in Chapter two, the assumption was made that there was a greater likelihood of learning if player interest was high. A good deal of attention was concentrated on the results of this section since the arousal of interest is the largest single advantage of teaching through games. However, even if we make the above assumptions, these questions were not capable of telling what was learned.

(4) Learning. The final questionnaire made an initial attempt at determining directly what had been learned through playing Planning Power Play. The retention quiz was formulated to test the number of individual facts the players retained concerning the position papers. Questions six and fifteen (See Appendix IV-a were intended to disclose through direct questions whether the players had become convinced of the importance of the political bargaining process, and whether they had learned anything about it. It was hoped that some of the fundamental lessons that the game was supposed to teach such as a general awareness of the multiplicity of interest groups that necessitate clever local area bargaining at the citywide political level, or the game winning strategy of cooperation, would be mentioned by the respondents in the comments section of the questionnaire.
Question fifteen however, did not determine whether these opinions were newly formed during the game. Question six related all responses to what was learned while playing the game and seemed to be quite successful in this. The fact that the planning students who had a pre-knowledge of this subject matter answered either "uncertain" or negatively on this question substantiates this assertion.

Question eleven attempted to ascertain whether the game had created a feeling of effectiveness among the players by asking whether present opinions in this regard constituted a change from before the game. Unfortunately the wording of this question appeared to confuse the respondents. Over fifty percent indicated uncertainty on the question and of the small number (one of nine in test five and 4 of 14 and 13 in tests three and four) who did say that a change occurred, most reported an unexpected negative change.

In summary, the final questionnaire and its retention quiz was a satisfactory device for determining the backgrounds of the players and for demonstrating how these factors were related to player criticism of the game and general player interest and involvement. In this manner it constituted an effective test of the game's adherence to the theory of teaching game draftsmanship and thus an indirect test of the teaching potential. However, it still proved somewhat inadequate as a tool to directly test the amount of learning experienced by the actual participants during the course of play.
SUMMARY OF RESULTS

The results of the questionnaires are summarized in Table III. Test one was not included because as mentioned earlier, it was not useful for comparison with the other tests since it used a different questionnaire to test a game version not played again.

Test two was played with persons most nearly conforming to what was expected from a citizens group. The group had a variety of ages and occupations and almost all were virtual strangers to games. However, version two was easily learned and generated quite a high level of enjoyment. This group of citizens enjoyed the position papers. Player concentration was generally high at the outset, and for most remained high. The persons who stated a decrease in interest were playing those roles which we later discovered did not have an equal chance of winning because of a bias built into the second round of the game. Although the question concerning the main lesson learned was rather poorly worded in this questionnaire many respondents indicated that they had learned some of the fundamental lessons built into the game. However, several of these showed that the money incentive was influencing the strategies formed.

Test three with the planning students clearly demonstrated the more critical approach taken by this group. The questionnaire results and taped post-game discussion pointed out once again the structural
<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Date of test</td>
<td>Feb. 2</td>
<td>March 1</td>
<td>March 1</td>
<td>March 10</td>
</tr>
<tr>
<td>2. Game Version Tested</td>
<td>2</td>
<td>2</td>
<td>Final</td>
<td>Final</td>
</tr>
<tr>
<td>3. Testing tool used</td>
<td>2nd verbal</td>
<td>Final (no quiz)</td>
<td>Final and quiz</td>
<td>Final and quiz</td>
</tr>
<tr>
<td>4. Participants:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Number of roles</td>
<td>14</td>
<td>*</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>b) Number of players</td>
<td>14 100%</td>
<td>14 100%</td>
<td>13 100%</td>
<td>9 100%</td>
</tr>
<tr>
<td>c) Sex: No. of males</td>
<td>9 65%</td>
<td>7 50%</td>
<td>7 55%</td>
<td>4 45%</td>
</tr>
<tr>
<td>No. of females</td>
<td>5 35%</td>
<td>7 50%</td>
<td>6 45%</td>
<td>5 55%</td>
</tr>
<tr>
<td>d) Age:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. under 25 yrs</td>
<td>0 -</td>
<td>7 50%</td>
<td>7 55%</td>
<td>3 30%</td>
</tr>
<tr>
<td>No. 25-54 yrs</td>
<td>10 70%</td>
<td>7 50%</td>
<td>6 45%</td>
<td>6 65%</td>
</tr>
<tr>
<td>No. over 54 yrs</td>
<td>4 30%</td>
<td>0 -</td>
<td>0 -</td>
<td>0 -</td>
</tr>
<tr>
<td>e) Background:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning students</td>
<td>1 10%</td>
<td>10 70%</td>
<td>9 70%</td>
<td>0 -</td>
</tr>
<tr>
<td>Wives of Planning students</td>
<td>0 -</td>
<td>4 30%</td>
<td>4 30%</td>
<td>0 -</td>
</tr>
<tr>
<td>Social Work Student</td>
<td>2 15%</td>
<td>0 -</td>
<td>0 -</td>
<td>9 100%</td>
</tr>
<tr>
<td>Dunbar Residents</td>
<td>11 80%</td>
<td>0 -</td>
<td>0 -</td>
<td>0 -</td>
</tr>
<tr>
<td>f) No. Playing Games 3 or more times per month</td>
<td>2 15%</td>
<td>6 45%</td>
<td>5 40%</td>
<td>1 10%</td>
</tr>
</tbody>
</table>

*percentages (rounded to nearest 5%) refer to the proportion of the specific number to the total number of people playing that particular game.*
### TABLE III

**Summary of Test Result Continued**

<table>
<thead>
<tr>
<th>5. Game Structure Criticism:</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) No. of players learning game</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) before round one</td>
<td>3</td>
<td>20%</td>
<td>8</td>
<td>60%</td>
</tr>
<tr>
<td>ii) by end of round one</td>
<td>10</td>
<td>70%</td>
<td>4</td>
<td>30%</td>
</tr>
<tr>
<td>iii) after round one</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>iv) not at all</td>
<td>0</td>
<td>-</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>b) No. of roles feeling they had an equal chance to win</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>45%</td>
</tr>
<tr>
<td>Generally Yes</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>15%</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>45%</td>
</tr>
<tr>
<td>c) No. of players considering their position papers realistic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>70%</td>
<td>6</td>
<td>45%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2</td>
<td>15%</td>
<td>5</td>
<td>35%</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>10%</td>
<td>3</td>
<td>20%</td>
</tr>
</tbody>
</table>

6. Interest Generated:

a) Number of players finding game entertaining

i) very entertaining | 8 | 60% | 8 | 60% | 7 | 55% | 8 | 90% |
### TABLE III

**Summary Of Test Results Continued**

<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii) moderately entertaining</td>
<td>5</td>
<td>35%</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>iii) moderately dull</td>
<td>0</td>
<td>-</td>
<td>2</td>
<td>15%</td>
</tr>
<tr>
<td>iv) dull</td>
<td>0</td>
<td>-</td>
<td>1</td>
<td>10%</td>
</tr>
</tbody>
</table>

b) Concentration needed in first round:

<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) all</td>
<td>3</td>
<td>20%</td>
<td>2</td>
<td>15%</td>
</tr>
<tr>
<td>ii) most</td>
<td>5</td>
<td>35%</td>
<td>5</td>
<td>35%</td>
</tr>
<tr>
<td>iii) moderate</td>
<td>2</td>
<td>15%</td>
<td>4</td>
<td>30%</td>
</tr>
<tr>
<td>iv) very little</td>
<td>1</td>
<td>10%</td>
<td>3</td>
<td>20%</td>
</tr>
</tbody>
</table>

c) Changes in last round (s):

<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) increased</td>
<td>2</td>
<td>15%</td>
<td>8</td>
<td>60%</td>
</tr>
<tr>
<td>ii) same</td>
<td>5</td>
<td>35%</td>
<td>4</td>
<td>30%</td>
</tr>
<tr>
<td>iii) decreased</td>
<td>4</td>
<td>30%</td>
<td>2</td>
<td>15%</td>
</tr>
</tbody>
</table>

7. Learning:

a) Increased Understanding of the municipal political process

<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Yes</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>15%</td>
</tr>
<tr>
<td>ii) No</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>45%</td>
</tr>
</tbody>
</table>

b) Main lesson learned

<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) necessity of skillful bargaining for local area</td>
<td>4</td>
<td>30%</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>ii) need for cooperation and trade-offs in the deals</td>
<td>3</td>
<td>20%</td>
<td>0</td>
<td>-</td>
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<tr>
<td></td>
<td>Test 2</td>
<td>Test 3</td>
<td>Test 4</td>
<td>Test 5</td>
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<td>iii) need for knowl-</td>
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<td>edge of your</td>
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<tr>
<td>opponents to win</td>
<td>0 -</td>
<td>1 10%</td>
<td>2 15%</td>
<td>0 -</td>
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<tr>
<td>iv) money rules city</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>hall</td>
<td>3 20%</td>
<td>0 -</td>
<td>0 -</td>
<td>0 -</td>
</tr>
<tr>
<td>v) other</td>
<td>2 15%</td>
<td>0 -</td>
<td>0 -</td>
<td>0 -</td>
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<tr>
<td>c) No. Players Chang-</td>
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<tr>
<td>ing their minds</td>
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<td>concerning the</td>
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<td>effectiveness of</td>
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<td>local citizen's</td>
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<td>views</td>
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<td>(6 of 9 reported a</td>
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<td>drop in effective-</td>
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<td>ness)</td>
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<tr>
<td>d) Political bargain-</td>
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<td>ing process relevant</td>
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<td>to city planning</td>
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<tr>
<td>i) yes because there</td>
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<td>are so many compe-</td>
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<td>ting interest</td>
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<tr>
<td>groups</td>
<td>-</td>
<td>3 20%</td>
<td>6 45%</td>
<td>6 65%</td>
</tr>
<tr>
<td>ii) yes (other)</td>
<td>-</td>
<td>6 45%</td>
<td>7 55%</td>
<td>3 30%</td>
</tr>
<tr>
<td>iii) no</td>
<td>-</td>
<td>2 15%</td>
<td>0 -</td>
<td>0 -</td>
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<tr>
<td>e) Retention Quiz av-</td>
<td></td>
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<tr>
<td>erage Score</td>
<td>-</td>
<td>-</td>
<td>71%</td>
<td>63%</td>
</tr>
<tr>
<td>f) Average score for</td>
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<td>those finding game</td>
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<td>dull</td>
<td>-</td>
<td>-</td>
<td>60%</td>
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</tbody>
</table>
### TABLE III

**Summary Of Test Results Continued**

<table>
<thead>
<tr>
<th></th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>g) Average score for those finding game mod. entertaining</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>65%</td>
</tr>
<tr>
<td>h) Score for those finding game very entertaining</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>77%</td>
</tr>
<tr>
<td>i) Av. score for 4 winning teams</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>72%</td>
</tr>
<tr>
<td>j) Av. score for 4 losing teams</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>56%</td>
</tr>
</tbody>
</table>
faults in the second version that resulted in some roles being quite uninteresting to play. The planning students generally found the game entertaining and very engrossing. However the cause of the interest was entirely in the money bargaining process and they were the first to admit that all relationship to their roles was lost.

Test four with the same planning students playing the final game version served as a useful comparison with version two played in test three. The players were less critical of this version, and a greater number felt that there was an equal chance to win. They found the game slightly harder to learn than version two, but considered this version to be just as entertaining as the other. They also found that the final version demanded high levels of concentration although this declined rapidly because the majority of the bargains were negotiated in the first two rounds creating a wait-and-hope situation in the final two. This problem was overcome by a minor rule change for test five.

The results of the final version showed a marked improvement in the number of players stating that the game had increased their understanding of the political process. In addition, a greater number did feel that they had learned some of the lessons that the game was designed to teach.

The high scores on the retention quiz indicated that the players had learned a good number of the background facts embodied in
the position papers. The fact that those scoring highest on the test
also reported the highest interest in the game on the questionnaire,
indicated that these high scores were partially the result of high player
involvement.

In general then, the final version proved to be a superior
teaching game for this test group. Interest was maintained, but the
emphasis on money was replaced by a greater involvement with the roles
embodied in the position papers.

Test five used social work students who more closely resembled
the citizens that Planning Power Play was designed for. The game had
been altered slightly to allow bargaining with members of opposing coali-
tions to help maintain the high initial levels of player concentration.
The same questionnaire and retention quiz were used. In general this
test substantiated the fact that the final version was an enjoyable and
instructive teaching game that was superior to version two.

This group was less critical of the game structure than the
planning students. All of the players considered themselves as having an
equal chance to win. This feeling was justified by the results of tests
four and five. Different roles won the two sessions and no interest
groups were consistently unsuccessful.

The social workers also found the game more entertaining and
did not show nearly as sharp a decline in player concentration. This
group refused to take a coffee break half way through the session. This
is probably due largely to the aforementioned change made in the bargaining rules.

The social workers gained substantially lower scores on the retention quiz probably indicating a lower pre-knowledge of the field. However, the questionnaire results demonstrated that they learned more of the basic lessons embodied in the game suggesting that this game version was perhaps even more successful as a teaching device of fundamental concepts with this group.

The social workers found this game more entertaining and more worthy of high levels of concentration than did the citizens playing version two in test two. This test also indicated that the final version taught the lessons that the game was intended to teach, and successfully eliminated the confusion resulting from the use of Dunbar Dollars that existed in game version two.

TENTATIVE FINDINGS

The results of the above tests allow us to make some tentative statements concerning the teaching effectiveness of Planning Power Play. As mentioned at the outset of the chapter, these statements cannot be considered statistically valid. However, they do tend to substantiate our hypothesis even if in rather an intuitive manner.

All of the testing evidence suggested that, although both games
were entertaining to play and satisfied our format constraints, the final version of Planning Power Play was superior to the second as a teaching game. By eliminating Dunbar Dollars as the criterion of winning, the final version was more successful at concentrating player interest on the interaction of interest group roles in the simulated political bargaining process. This was demonstrated by comparing the results of tests three and four, and of tests two and five.

The final version also overcame some of the structural faults of version two by allowing double the number of rounds of play and by reducing the number of bargaining teams. As a result of this superiority of the final version, it was decided to only examine the results of this specific game in our assessment of the success of Planning Power Play in satisfying our hypothesis. As a result, the following statements will refer only to the final version of Planning Power Play.

The ten statements below correspond to the format constraints and game purposes specified in Chapter one as the criteria of an effective teaching game. These statements then, constitute a non statistical test of our hypothesis. Our preliminary tests indicated that the final version of Planning Power Play closely adhered to the six format constraints.

Format Constraints

(1) The playing time was short enough that the game could be played at an evening meeting. The final version was played in two and one half hours on both occasions, including an initial learning period and a short discussion period at the end.
The game could be played with relatively large groups of people. Our tests indicated that it was a more interesting game and a better teaching tool when at least two people were on each of the eight teams. The winning interest group in test five was the only two man team in the game. These players also received the highest retention quiz scores in that game. One test with a three man team also seemed successful. No tests have been made with four man teams, but this evidence suggests that Planning Power Play could be played quite successfully with from eight persons to at least twenty-four, and possibly with thirty-two.

The game could be played in a variety of physical settings ranging from three small rooms of the author's house used in tests three and four, to a moderately sized, open seminar room as used for test five. As mentioned in Chapter four, the props proved to be highly portable and relatively easy to set up during the in-the-field tests.

Planning Power Play was an interesting game to play, especially for persons not professionally involved in urban planning. In test five with the social workers, eight of the nine participants rated the experience as "very entertaining", and this response was reinforced by their informal comments after the game. Only one of the nine was a regular game player which would suggest that the game is effective even with game playing novices.

At the same time, the final version of Planning Power
Play was stimulating enough to teach basic facts as evidenced by the scores on the retention quiz; and to promote discussion centered around the theme being taught. In test five especially, discussion sprung up during the bargaining sessions, after the game, and to a limited extent, as the position papers were being read.

(6) The tests also indicated that the game was simple enough in content and clearly enough presented that the players were able to grasp the basic concepts required to play. No players reported that they were unable to grasp the fundamentals of play, and many reported learning the game before the end of the first round of bargaining. The fact that high levels of enjoyment were sustained throughout the game further substantiated this fact.

**Game Purposes**

The final version of Planning Power Play also appeared to satisfy its four stated purposes. The testing of this aspect was less precise than with the format constraints, but general conclusions can be drawn.

(1) The game did create an atmosphere conducive to a two-way communication between the planner and citizens. It instilled an interest in the subject among the players that prompted questions; and of course it brought the planner in contact with the citizens in an informal atmosphere so that he could respond to these questions. Discussion appeared to be generated at the end of each round of bargaining and at the end of play. In these tests the post-game discussion was hindered by
the administration of the test questionnaire which would not be used in
the normal use of Planning Power Play.

(2) The game appears to have been successful in acquainting
the players with a basic understanding of the political bargaining
situation. A large proportion of the citizens reported that they were
more acutely aware of the wide variety of views held by citywide interest
groups after playing Planning Power Play. In this regard also, the
tests showed that those participants who were most successful in the
game learned more from the experience. This would indicate that the
game was successful in equating the game winning strategy to the lessons
to be taught.

The fact that the game portrayed citywide pressures that
affected the local area of Dunbar was not emphasized as much as it
should have been - especially with the planners in test four. This
shortcoming can easily be overcome however, by emphasizing the role
of the game leader as that of a city council which is forced by political
pressure to decide each issue in favour of the most powerful coalition.

(3) The testing was not successful in showing that Planning
Power Play demonstrated to the participants that it was possible for
local areas to guide much of their own destiny if they were skillful
and cooperative bargainers. This result was due partially to an
ineffectual question in this regard on the questionnaire. It is also
quite likely the result of an overemphasis in the game on the multiplicity of competing interest groups. The fact that this latter lesson was so universally recognized by the participants suggests an explanation as to why several of the respondents who did report a change in attitude during the game stated that they were now less convinced of the possible effectiveness of local area residents in guiding the future of their area.

(4) The final purpose of Planning Power Play would seem to have been fulfilled. This aspect was not tested by the questionnaire, but post-game discussion and general comments indicated that the players recognized the added difficulty in formulating bargaining strategies in the simulated environment of issue by issue crisis planning.

The large map board of the Dunbar area on which all changes were symbolically represented was rather a peripheral part of the game in most respects. However, its usefulness in promoting discussion of this topic justified its inclusion in the game. Several participants commented after test five that the physical result of the bargaining as portrayed on the map board was far from desirable; and agreed that a comprehensive plan for the area would produce better results even when subjected to the inevitable compromises resulting from the political bargaining process.
The final version of Planning Power Play was only tested on two occasions: and only once with a group resembling residents of a local community. Also, as was reported above, the other tests of game versions one and two were somewhat irregular with different groups of players and different testing tools. However, these tests all indicated that the Planning Power Play game format and especially the final game version would satisfy the hypothesis if a full testing programme was set up.

As the tests above testified, the final version of Planning Power Play satisfied the many format constraints that we were forced to impose on such a game. The game was practicable to play in the citizen participation milieu and it created the interest that makes gaming a more effective teaching device than other methods of citizen education and involvement.

The tests also indicated, although less rigorously, that the game satisfied at least three of its four stated objectives. It proved to be an effective catalyst to foster two-way communication; it succeeded in teaching fundamental concepts and pertinent detailed facts, and it increased the participants awareness of the problems associated with an issue-by-issue crisis approach to planning.

The fact that no conclusion can be reached concerning whether the game generated feelings of political effectiveness among the players
was partially due to the testing device. In any case the other
tests provide enough convincing evidence to justify calling
Planning Power Play an effective teaching device.

We can conclude then, that the above exploratory findings
relating to the final version of Planning Power Play, although not
statistically valid, do constitute an informal proof of our hypothesis
- that a planning game can be developed that will be an effective
educational tool in citizen involvement in the neighbourhood setting.

It should also be noted that the effectiveness of Planning
Power Play as a teaching game may well extend to groups other than
the residents of the local area of Dunbar. In the five tests it
was found that even the planning students enjoyed the game and some
felt that it was educational. The social workers in test five
found the game to be very interesting and informative despite the fact
that few of them had even a passing acquaintance with the Dunbar area
- although most resided in similar residential areas. It would appear
then, that the simulated environment created by the game was convincing
for residents of any similar area since the crises that arose in the
game were common to all of the Dunbars of our urban centres.

The conclusion that the final version of Planning Power Play
appears to be an effective teaching device does not imply that the game
is perfect. The reading of the position papers which serves a valuable
educational function is still not fully integrated into the game. This
is partially due to the fact that the role playing component has been
minimized to the extent that some players do not identify themselves or their adversaries as representatives of an interest group, but rather just as bargaining opponents. Such a problem can be altered however.

The formulation of a perfect teaching game is a long process requiring constant testing of, and minor refinements to, a basic framework. This thesis has presented one game version that is a very adequate teaching tool - yet it is still capable of refinement. It is beyond the scope of this study to test further refinements; but the final chapter will deal with some of the avenues which future studies could explore.
NOTES: CHAPTER FIVE


3 Gerald Zaltman found a similar correlation between high player involvement and game scores in his studies with childrens games: See e.g., "Degree of Participation and Learning in a Consumer Economics Game," in Simulation Games in Learning, pp. 205-215.
One of the implicit purposes of this thesis was to further the practice of involving citizens in the planning of their urban areas by presenting another tool for use in citizen participation. As stated at the outset of the thesis, it is the author's firm belief that the need for such methods, especially at the local level, is increasing as urban centres grow.

Few modern planners would suggest that the ivory tower approach to city planning as exemplified in the City Beautiful epoch at the beginning of this century is applicable today. However, all too few are willing to descend entirely from their pedestal and become truly involved with those they are planning for. Instead, they leave it up to the politicians to decide what pressure groups should be listened to when altering a plan with the result that many plans fade into oblivion on the rear shelves of City Hall. If a planner wants to be effective, he must become involved with the people at an early stage in an effort to produce plans that can guide the politician in the social and political ramifications of a proposed action as well as the economic and land use implications.

The argument is presented that citizen participation is too time consuming, and all too often results in "bad planning" even if it
is carried out. Many planners still contend that too many decision makers only confuse the result, and they revert to the old adage that a horse designed by a committee is likely to end up as a camel. It is this author's contention that it is not the phenomenon of citizen participation which is at fault - but rather the methods of implementing it.

The future emphasis then, must be in developing better methods of contacting citizens and interest groups. This study has shown that the Planning Power Play teaching game offers one device that can help in this essential two-way communication process where the citizen must be informed of the physical, economic, social and political realities of a large urban area; and the planner must be sensitized to the needs of those he is planning for.

PRESENT AND FUTURE USES: AN ADAPTABLE TOOL

Planning Power Play was originally designed for use in the one middle class residential area of Dunbar to aid in a citizen initiated local planning programme. However, as was discussed in Chapter five, the game demonstrated its possible usefulness in any neighbourhood with the same general problems. In its present form then, it constitutes a tool for teaching residents of perhaps any middle class residential area the importance of a skillful political voice at City Hall.
The tests of this study only demonstrated the game's effectiveness in five separate tests. On the basis of these findings, one can only speculate on the usefulness of a programme of repeated playing of the game with large numbers of an area's population. However, the indications were that indeed such a widespread programme would be effective. The game was practical in that it could be quickly played and easily transported. The individual tests showed that it did teach so it could be assumed that it would be at least equally effective when played with more groups. Lastly, the game was interesting to play so that word might spread in a neighbourhood that it was a worthwhile experience which would facilitate the planner's task of encouraging people to come out to public meetings.

Planning Power Play also demonstrated its ability to be easily adapted to teach the same basic political lessons to residents of another area with different problems. It is estimated that a planner with knowledge of the area the game was to be used in could adapt this format for local use in about three working days. This would involve the changing of position papers of the local neighbourhood roles to better portray the particular community structure; and the formulation of new issues that would reflect the problems confronting that area.

In this regard Planning Power Play might be a relevant tool for use with low income residents if it was altered to reflect the
area's specific characteristics. The political lessons contained in the game could be used to help the "have-not" groups realize the ways in which they could gain power. As Sherry R. Arnstein pointed out in a recent article, "...in most cases the have-nots really do perceive the powerful as a monolithic system, ..." Planning Power Play could help such persons to realize that the "establishment" is not really as cohesive a group as it might appear.

The Planning Power Play game format embodying the two principles of power confrontations of the teams by a hidden bid system, and the use of a personally formulated and secret success formula guiding the strategy of each team, can be adapted to develop entirely different games. A group of planning students at the School of Community and Regional Planning, including the author, and under the direction of Brahm Wiesman, developed such a game called Sludge Harbour for a special school presentation for visiting residents of Vancouver.

Although it taught different lessons and was a much quicker game to play, "Sludge Harbour" shared many of the fundamental principles of the Planning Power Play format. The game took the group of four persons less than ten hours to formulate and pre-test; yet it was a virtually flawless success when played. The fact that such new games can be developed for new purposes in such a relatively short time is another point in favour of the use of gaming in teaching situations, and a further proof of the advantage of an adaptable game format such as Planning Power Play.
THE POTENTIAL OF GAMING: A NEED FOR FURTHER RESEARCH

A close examination of a relatively new field often results in one finding a multitude of subjects that are beyond the scope of the original study, but nonetheless worthy of a closer examination. Such was the case with the present subject. As a result, this final section of the thesis can only present a plea that more research be done in this promising and necessary field. It is hoped that more people from urban planning and other disciplines will find the subject of teaching games of interest, and will go beyond the initial steps taken in this and other studies done in Canada and the United States.

Refinement Of The Game

Much research must be done relating to the methods of development and refinement of teaching games. As mentioned in Chapter five, the development of a perfect teaching game is a long process. The final version of Planning Power Play presented here is really only final for the purposes of this thesis. Many refinements to the game are possible, and alterations could be made to the format that might produce better teaching results. Several examples that have occurred to the author are listed below. A project to incorporate any of these changes into Planning Power Play and to administer new tests of their effectiveness would constitute an interesting and valuable field for further research.
(1) A simple alteration to Planning Power Play would be
to leave the order of play of the issues to chance. Players might
then encounter even more difficulty in formulating bargaining strate­
gies in this realistic crisis planning situation. It would be interes­
ting to see if this change strengthened the awareness among the
players of the need for a comprehensive plan. It would also be
important to determine if such a change decreased any of the other
teaching capabilities of the game.

(2) It might also be valuable to experiment with allowing
greater freedom in the role playing in an attempt to more solidly
cement the player's outlook and actions to the role that he is portray­
ing. This could be accomplished by allowing each team to decide on
their own but in secret whether they would vote in favour, against or
initially remain indifferent. A simulated public hearing could then
be held with the players presenting arguments and bargains, for and
against, to the indifferent teams. This change would increase the
playing time, but it would be of interest to know if it also improved
the teaching capabilities of the game.

(3) A final alteration that might improve version two of
Planning Power Play would be to remove all overt restrictions on the
voting behaviour of teams. The position papers would not state
minimum votes required or the possible rewards. However the state­
ments would present clues to suggest to the player what magnitude of
bonus secretly awaited him if he voted in a certain manner. At the
end of each round the successful coalition members would be given
their bonus reward according to the secret reward schedule used by the game supervisor.

It is clear just from these three examples that there is a great deal of further research that could be done on just this one teaching game. In light of the great potential for this type of game it seems essential that we must continue to sophisticate the "art" of game formulation by further experimentation as suggested above, and ultimately by increasing our body of knowledge about gaming in general.

"We need two types of knowledge: a better sociological theory (which tells us what to include in the game and what not) and a better theory of gaming (which would tell us which aspects of the game have what effects." 3

The satisfaction of these two needs may necessitate the involvement of sociologists, educators and experts from other disciplines; but it is to be hoped that the planner will continue to play an active role so that the specific needs of planning teaching games will be included in the research.

Refinement Of The Testing Tool

To a large extent the development of better planning, teaching games will be dependent upon improving the testing methods so that faults can be easily recognized and altered. However, the testing of teaching game effectiveness is difficult. People are generally loath to rigorously test different versions of a game to compare the results of different combinations of game components. In addition,
control group testing methods which should produce the most accurate
test results have proved impracticable in game testing due to strong
"Hawthorne Effects" where the subjects are so strongly affected by
the test environment that changes in their actions can not be considered
to be exclusively the result of the test stimulus.

Boocock lists four things that we should know if we are to
properly evaluate learning in the game playing process. ¹⁴

We should know:

1) what is the content that is taught;
2) under what conditions is the game most effective;
3) with what players is the game most effective, and
4) whether it teaches particular things better than
other methods.

The testing of these four factors would constitute a formidable task.
However, all tests should keep this ideal standard in mind.

As mentioned in Chapter One, a necessary test to prove the
effectiveness of Planning Power Play was omitted from this examination.
This thesis only showed that the final game version appeared to be an
effective teaching tool in one or two isolated test cases.  The use
of Planning Power Play in an ongoing citizen participation programme
to test the effectiveness of the game playing method over an extended
time period would constitute an extremely valuable subject for future
research.  Such a test would probably generate new data to guide
development of future improvements to the format; and by demonstrating
its practical use in an ongoing long-term project, it could help in the essential task of legitimizing the use of teaching games and thus encourage their more widespread acceptance and use.

The Need For Government Support

The extensive research requirements for this field outlined in the previous sections make it quite clear that if the full teaching potential of planning games is to be felt, substantial assistance will be required. As a result, this thesis will conclude with a plea for support from the various levels of government. Government aid is needed for the encouragement of research into means of improving games and testing methods. It is also absolutely essential if the process of citizen planning education is to be extended into the school system where it can probably serve its most valuable purpose.

The educational potential in high schools for this type of game is unlimited. Regular urban planning training in the schools now, will result in future citizens with more confidence in their ability to deal with City Hall, and an increased interest in their urban environment. These future citizens should be more willing and able to take an active role in controlling their own residential environs. This kind of informed citizen outlook combined with improved methods of organizing citizen participation, could result in a form of citizen involvement in urban planning that is virtually impossible today.

Gaming is ideally suited to classroom teaching. The Abt
Association has found that children's teaching games are most effective in conjunction with background reading and post and pre-game discussion. As referred to in Chapters two and three, educational gaming is already enjoying extensive use in some areas of the United States. However, the use of planning oriented games seems virtually neglected at the high school level.

The first version of Planning Power Play is well suited to fill this void. Its greatest teaching potential could be realized in a high school class situation where successive rounds of play could be spread over one or two weeks of classroom time in conjunction with reading and practical research.

The game in its present form would require extensive refinements which again would require provincial research funds. However, if the province also made an effort to allocate some teaching time in its educational curriculum to this subject matter, the final development and use of such a game in the schools might constitute the most valuable future use of the Planning Power Play game format.
"Sludge Harbour" was primarily a land development game that demonstrated what happens when land development is purely contingent upon money bids. It was intended merely to start people thinking about how and why large tracts of land develop; and to help them realize that the free market mechanism is not really adequate on its own. In this respect it was an attempt to justify the role of planning to the visitors.

A large map board was divided up into twelve land parcels, and four teams, each representing a development interest such as high density housing or industry, made secret bids to try and develop the land. Each team had previously made up their personal success formula specifying how many success points they would receive if they were successful in buying a particular land parcel in the land auction. The winning team was that group that had amassed the largest number of success points at the end of the land auction. All development was symbolically represented on the large map board and formed the basis for discussion concerning the desirability of the resulting land use pattern. The game and a brief discussion period lasted only twenty minutes.


Sarane S. Boocock, Ibid., p.20.

BIBLIOGRAPHY

BOOKS OR REPORTS


**ARTICLES IN JOURNALS OR MAGAZINES**


Collier, Robert W. "Orientation Programme for Aldermen, Harrison Hot Springs, February 20-22, 1970," The School of Community and Regional Planning, University of British Columbia, Spring, 1970. (Mimeographed.)

Dooble. "The Implementation of City and Regional Planning in Developing Countries," Harvard Dept. of City and Regional Planning, Spring, 1963. (Mimeographed.)


Smolevsky, Eugene; Becker, Solwyn; and Mottolch, Harvey. "The Prisoners Dilemma and Ghetto Expansion," University of Chicago, 1967. (Mimeographed.)

APPENDIX I

A PARTIAL LISTING OF SOME TEACHING GAME DISTRIBUTORS AND THEIR GAMES

(1) ABT ASSOCIATES INC.


They have been consultants for the innovation of scores of teaching games. "Dangerous Parallel" is one example not listed below. They have developed many games for other clients (see end of following list).

ELEMENTARY GRADES

NEIGHBORHOOD (CDC)

"Neighborhood" simulates the development of an urban area, based upon settlement and growth of Boston's North End. Population teams develop neighborhoods with residential, commercial, industrial and cultural centers on a game board. In intermediate and advanced versions of the game, pieces within each group are differentiated according to social class; transportation systems must be planned, zoning regulations instituted, etc.

POLLUTION (CDC)

"Pollution" is designed to teach students the social, political and economic problems involved in attempts to control pollution. The first part of the game is a simulation of the way in which water and air pollution are generated. As the cycles proceed, players are motivated to control pollution. The second phase of the game is a simulation of a town meeting called to decide what measures, economic and technological, to employ to control the problem.

GET SET GAMES (HMC)

The "Get Set Games" are a series of reading readiness exercises and games for kindergarten and first grade children to accelerate the learning of reading. They are designed to be coordinated with the Harrison - McKee reader, a consonantal reading system.

e.g.:

SILLY SENTENCES: Gives practice in using oral context clues.
STOP-DOT: Develops the idea of left-to-right sequences and correct reactions to the comma and the period.

PICTURE WORDS: Provides practice in using context and the sounds of initial and final consonant letters as clues in unlocking words not familiar in printed form.

4th GRADE SOCIAL STUDIES GAMES (ECS)

The following games are part of various units of "Man: A Study in Adaptation," which is an inter-disciplinary curriculum for 4th grade social studies.

MARKET PLACE: a simulation of the Kikuyu market place (food, wares, hardware and jewelry, wood and livestock). Players go through several trading transactions before they are able to obtain the items on their family "shopping lists."

THE TRACKING GAME: a board game in which players move through the wastes of Central Australia searching for food. Players learn to recognize subtle clues to the presence of foodstuffs and they recreate division of labour between the sexes.

SURVIVAL GAME: a card game designed to review the concept of adaptation. Each student determines his environment - Desert, Polar, or Tropical Rain Forest - and attempts to solve three survival problems: food, clothing, and shelter.

HUNTING GAME: designed to let students discover the animals the Eskimo hunts; what animals help satisfy what needs; the pros and cons of technological advancement; how the trading post system operates; and how a harsh environment with few materials limits possibilities.

5th GRADE SOCIAL STUDIES GAMES (EDC) (unavailable)

The following games were intended to be used as part of a unified 5th grade social studies curriculum, "Man: A Course of Study."

SEAL HUNTING: a board game which demonstrates the essentially chance interaction of the worlds of the seal and Eskimo. The game illustrates the psychological as well as economic advantages to cooperative hunting and the decision-making process involved in this. The game also dramatizes the importance of sealing in Netsilik society and illustrates the relation of the seal to mythology and kinship.
CARIBOO HUNTING: a board game in which children explore the relationship of technology and social organization in a culture using the example of caribou hunting among the Netsilik Eskimos of Pelly Bay. The game provides a structure within which the student can resolve a cultural problem - how best to kill enough caribou to survive the winter.

SIERRA LEONE (BOCES) (unavailable)

Designed as a manual analog to a computer simulation for 6th grade social studies students, the game provides students with an understanding of the problems of newly independent African countries, an awareness of facts about the geography and recent history of Sierra Leone, and an understanding of economic principles as they operate in underdeveloped countries.

ELEMENTARY ECONOMICS PROJECT (IRC) (unavailable)

The following games were designed as part of a 6th grade curriculum.

MARKET: designed to develop in students an understanding of the way prices are determined in a market economy. The game illustrates the principles of supply and demand and price level. Students play the roles of consumer and seller in a grocery store and bargain over the price of goods.

ECONOMY: designed to develop in students an understanding of the circular flow of goods and services in the economic system. Students take the parts of machine shop owners, manufacturers of consumer goods, heads of families, and bankers. (Junior High School level).

EMPIRE (EDC)

"Empire" is a board game which illustrates mercantile competition between American colonies and England in the 1730's. Seven teams of players, such as London merchants, colonial farmers, and British West Indies planters, bargain over prices, buy and sell goods, and move ships across the Atlantic; they compete for profit by means of trade in the 18th century British Empire. The game is designed to demonstrate the place of the American colonists in the Empire, and how their membership in the Empire affected the way they made their living.
SLAVE TRADE: a one-day interlude in the EMPIRE game designed to show the varieties of misery that were suffered by Negroes in the 18th century, when they were transported as slaves. Players are Negro slaves and the object of the game is to survive.

LIST OF ABT CLIENTS

Curriculum Development Center (CDC)
Wellesley School System
Seawood Road
Wellesley Hills, Mass. 02181

Houghton Mifflin Company (HMC)
Educational Division
110 Tremont Street
Boston, Mass.

ED/COM SYSTEMS, INC. (ECS)
145 Witherspoon Street
Princeton, New Jersey 08540

Educational Development Center Inc.
55 Chapel Street
Newton, Mass. (EDC)

Board of Cooperative Educational Services
Northern Westchester County
845 Fox Meadow Road (BOCES)
Yorktown Heights, New York 10598

Elementary Games Project
Industrial Relations Center
University of Chicago (IRC)
1225 East 60th Street
Chicago, Illinois 60637

Dr. Malcolm Collier
Director of the Study Project (AAA)
American Anthropological Association
5632 Kimbark Avenue
Chicago, Illinois 60637

High School Geography Project (HSG)
University of Colorado
Boulder, Colorado

Information System for Vocational Decisions
Harvard Graduate School of Education (HES)
220 Alewife Brook Parkway
Cambridge, Mass. 02138

Mr. Roger Mastrude
Vice President, Field Service
Foreign Policy Association (FPA)
345 East 46th Street
New York, New York 10017

University of Minnesota
(University of Minnesota)
Fifth Alumni Institute in Hospital Administration
Minneapolis, Minnesota

Education Director
Communications Workers of America (CWA)
1925 K Street, N.W.
Washington, D.C. 20006

Executive Director Rm 1010
National Congress of American Indians (NCAI)
1346 Connecticut Avenue N.W.
Washington, D.C. 20036
(2) **THE DIDACTIC GAME CO.**

Ed. division of R.B. Enterprises Inc.,
Box 500, Westbury, Long Island,
New York, 11590.

This company specializes in business games both custom tailored and pre-made. Their games usually consist of small booklets that present a series of short true to life situations, and teams of three to six make decisions on how to deal with each problem.

(3) **FOREIGN POLICY ASSOCIATION**

345 East 46th St., New York, 10017.

This body has sponsored several games (eg. "Dangerous Parallel") and publish an excellent bibliography on simulation games suitable for the social studies classroom.

(4) **HOPKINS GROUP**

John Hopkins University

This group headed by Coleman are responsible for quite a variety of childrens teaching games.

**PARENT CHILD GAME:** Simulates one aspect of the parent child interaction by putting both on a team to win against other teams. The two roles must cooperate to win.

**LEGISLATURE:** A game of strategy where the player must act to please the voter while simultaneously acting in accord with his previously decided beliefs.

**CONSUMER:** The goal is to teach adolescents the problems of budgeting and installment buying. Players are given a certain income to buy game winning satisfaction points.

**LIFE CAREER GAME:** Students are acquainted with making decisions about jobs, family life and the use of leisure. Teams
compete in a simulated environment to receive payoffs in terms of satisfaction points.

(5) **INTERACT**

P.O. Box 266, Lakeside California, 92030

This company was formed by two social studies teachers who specialized in simulations.

**SUNSHINE GAME (GHETTO):** A simulation of current racial problems in a typical American city. Players are expected to react to hypothetical situations from the point of view of a ghetto resident.

**DISUNIA:** A twenty first century simulation paralleling the problems of sovereignty from 1781-1789. A variety of roles interact within the constraints of a hypothetical constitution. The ruler attempts to make money regardless of the consequences to his country.

(6) **INTERNATIONAL LEARNING CORPORATION**

140 East Los Olas Blvd., Fort Lauderdale, Florida, 33301

They produce a variety of games for both children and adults.

**WFF'N PROOF:** A series of puzzles and quizzes to be played by one participant from age six upwards.

**EUROCARD:** A single person quiz game to teach the geography of a continent.

**ON-SETS:** Set theory quizzes for all ages to show the concepts of the new math.

(7) **JOINT COUNCIL ON ECONOMIC EDUCATION**

1212 Avenue of Americas, New York, N.Y., 10036
This is one group specializing in the development of economic simulation games.
APPENDIX II

DETAILS OF THE SECOND VERSION OF PLANNING POWER PLAY

II-a ISSUE SHEETS (GAME VERSION TWO)

Issue 1 - Dunbar Street as a Four Lane Arterial

It has been suggested by the engineering department that Dunbar street be improved to become a major four lane arterial road with marked lanes and relatively few stops. It would become one route for citywide commuter traffic, and be designed to mesh with feeder roads such as 33rd and King Edward Avenues.

The improvement would not necessitate street widening but there would be fewer crosswalks allowed especially in the present Dunbar shopping areas. Traffic lights would be limited to the intersections of feeder streets.

Parking would be restricted on both sides during rush hours - i.e. 7:00 - 9:30 A.M. and 4:00 - 6:00 P.M.

Bus service would be continued along the street.

Issue 2 - Garden Apartment Redevelopment Scheme

Permission to change the zoning on a three acre site (approximately one city block) is being sought by a developer, and the public is to be given their say before city council decides on the change.

The development would consist of three storey apartments, two storey garden apartments, and townhouses placed within one
APPENDIX II-a CONTINUED

Issue 2- Garden Apartment Redevelopment Scheme Continued

existing city block. The development would be limited to thirty-five dwelling units per useable acre of land. That would mean construction of about one hundred and five residences on a block presently holding about thirty-five single family homes (three times the existing number of dwelling units). However, the new dwelling units would be smaller than the existing homes and would house fewer persons per unit so that the population living on the block would probably only double.

Controls would be placed on the development to ensure that townhouses would form a buffer between the denser redevelopment and adjacent single family housing. At least one side of this development would have to be on a major street or adjacent to previously redeveloped areas. Some commercial uses would be allowed on the ground floor of apartments if they fronted on Dunbar Street or 16th Avenue. In addition the development would be required to meet strict "performance" standards in regard to building facings, parking and landscaping.

The development will be located near the intersection of 16th Avenue and Dunbar St. in the area one block east or two blocks west of Dunbar St. from 16th to 19th Avenues (demonstrate on map). If the proposal is adopted the winning coalition will choose which location they want, and decide whether they wish to include commercial premises within it. (The game Supervisor will encourage discussion at this stage.)
APPENDIX II - b

INTEREST GROUPS AND THEIR INITIAL POWER (SECOND GAME VERSION)

<table>
<thead>
<tr>
<th>Interest Group</th>
<th>Power</th>
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<tr>
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<tr>
<td>Large Dunbar Businessmen</td>
<td>5</td>
</tr>
<tr>
<td>Dunbar Homeowners</td>
<td>11</td>
</tr>
<tr>
<td>Dunbar Parent-Teacher Associations</td>
<td>5</td>
</tr>
<tr>
<td>Dunbar Community Association</td>
<td>5</td>
</tr>
<tr>
<td>Senior Citizens</td>
<td>3</td>
</tr>
<tr>
<td>Tenants</td>
<td>2</td>
</tr>
<tr>
<td>City Tax Assessor</td>
<td>7</td>
</tr>
<tr>
<td>City Engineering and Traffic Experts</td>
<td>9</td>
</tr>
<tr>
<td>Real Estate Developers</td>
<td>9</td>
</tr>
<tr>
<td>Kerrisdale Community</td>
<td>4</td>
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<tr>
<td>Point Grey</td>
<td>4</td>
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<tr>
<td>Richmond</td>
<td>3</td>
</tr>
<tr>
<td>Central Business District</td>
<td>6</td>
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</tbody>
</table>
APPENDIX II - c

A SAMPLE OF THE INTRODUCTORY ROLE PAPERS (SECOND GAME VERSION)

Introductory Role Paper #2

LARGE DUNBAR BUSINESSMEN

We own or rent fairly large stores along Dunbar Street that do a brisk volume of business.

We depend to a large extent on the patronage of Dunbar residents, but many also advertise throughout the western Vancouver area.

The largest proportion of our clients drive to our stores - we worship the car.

Many of us are quite progressive and would look forward to moving into a new shopping centre if one were constructed along Dunbar Street.

Our influence in local affairs gives us 5 Power Units.
APPENDIX II -c CONTINUED

Introductory Role Paper #4

PARENT TEACHERS ASSOCIATION

We sympathize with the Home owners and of course, most of us are indeed house owners.

Since we are all parents however, our main concern in Dunbar is to maintain an environment that is safe and healthy for our pre-school and school age children.

We will be prepared to fight for better recreation, better schools and safer street crossings.

We are not too well organized, but through the school and parks boards we still have 5 Power Units to push our cause.
SENIOR CITIZENS

I represent a varied group. A few of us presently reside in retirement homes in or near the area. Many more of us now live in private single family homes within Dunbar, but would prefer to dwell in less expensive accommodation yet remain in Dunbar near our friends and families. In addition there are many of us who live outside of Dunbar - even outside of Vancouver - who would like to retire here.

People tend not to listen to us until we form a very sizeable group. Thus we have only 3 Power Units. These will be used however, to further housing that suits our needs, and we will gain power at the rate of 5 Units for every retirement housing scheme that goes into Dunbar as this will increase our numbers and help us to better organize ourselves.

You can also expect us to support the concept of a relatively unchanging Dunbar. We like the quiet atmosphere that presently exists.
APPENDIX II - c CONTINUED

Introductory Role Paper #13

RICHMOND

I represent the residents and business interests of Richmond.

We are further away from Dunbar - in fact not even a part of the same city. However, we still use the City of Vancouver for shopping, work and recreation.

As a result, our needs and desires do have some import. Our mayor has some influence with your City Council because they must consider the entire region - not just Vancouver City - in their decisions.

Thus we have 3 Power Units that will be used to ensure that our interests are considered.
DUNBAR ST. AS A 4 LANE ARTERIAL

In the short run such a change may reduce the property values and thus the assessments along Dunbar Street and its major feeders.

However, it may also encourage further higher density and commercial uses in the future which would raise assessments. It would also result in higher assessments on properties to the south of Dunbar.

It could be good or bad then, and I'm INDIFFERENT.
10-2 Real Estate Developer and Construction Interest

DUNBAR ST. AS A 1/4 LANE ARTERIAL

Such a change is bound to increase the possibility of higher density along Dunbar St. so we will vote for it.

ALSO, if there is no high density in the area at present such a road may reduce some single family home values allowing me to buy up property for redevelopment at a lower price. THUS we will receive a $200 BONUS if the road plan is adopted.

We must vote FOR-MIN. 3
DUNBAR ST. AS A 4 LANE ARTERIAL

We will support anything that keeps people coming downtown and what is more effective than good roads. We would prefer a subway under Dunbar St. but for the time being an improved road for cars and buses is just fine. We are committed to the idea and will receive a $100 BONUS for increased business if it is successful.

We must vote FOR - MIN. 3
GARDEN APARTMENT REDEVELOPMENT SCHEME

Our association just doesn't like the idea of more people - especially the kind of people who rent their housing - moving into Dunbar.

In addition this would seem like a particularly bad location for new families because it is a long way from existing elementary schools, and might involve the children crossing Dunbar Street. We will receive a BONUS of 100 Dunbar Dollars in increased support from our members if the proposal is blocked.

We must vote AGAINST - MIN. 2
We can't see why Dunbar is so worried about a bit of well planned redevelopment. It is needed all over the city, so why shouldn't Dunbar take its share - we certainly did.

For the sake of maintaining some single family areas in Kerrisdale, we support the idea of spreading the increased densities around to other areas.

Thus, we will receive a bonus of 200 Dunbar Dollars as a vote of confidence from the homeowners in Kerrisdale if we are successful.

We must vote FOR - MIN. 2
APPENDIX II-e

THE COMMITMENT TALLY SHEET (SECOND GAME VERSION)

This form was printed for use with versions one and two of Planning Power Play. For version two each of the initial power allotments is reduced by a power of ten so that 40 becomes 4 or 110 becomes 11. The "additional power units" do not pertain to version 2.

<table>
<thead>
<tr>
<th>INTEREST GROUP AND INITIAL POWER</th>
<th>MINIMUM SPECIFIED FOR</th>
<th>AGAINST</th>
<th>CASH PAYOFF</th>
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<tbody>
<tr>
<td>SMALL DUNBAR BUSINESSMEN 40</td>
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<tr>
<td>LARGE DUNBAR BUSINESSMEN 50*</td>
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<tr>
<td>HOMEOWNERS 110</td>
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<tr>
<td>PARENT-TEACHER ASSOCIATION 50</td>
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<td></td>
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<tr>
<td>DUNBAR COMMUNITY ASSOC. 50*</td>
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<td>SENIOR CITIZENS 30*</td>
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<td>TENANTS 20*</td>
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<td>CITY TAX ASSESSOR 70</td>
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<td>CITY ENGINEERING AND TRAFFIC 90</td>
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<td>REAL ESTATE DEVELOPER 90</td>
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</tr>
<tr>
<td>POINT GREY 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RICHMOND 30</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CENTRAL BUSINESS DISTRICT 60</td>
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</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* THESE GROUPS CAN OBTAIN ADDITIONAL POWER UNITS
SUMMARY OF GAME PROCEDURE AND RULES (SECOND VERSION)

Initial Procedures

- Players choose their own role (interest group).

- Each individual or team representing one of the fourteen interest groups is given 500 "Dunbar Dollars"; the appropriate number of "power unit" cards for that role; one introductory role position paper, and two "commitment papers."

- Each team reads its introductory role paper.

- The game supervisor describes the local area of Dunbar with reference to the large map board showing the area in land use map form.

- The game supervisor reads the first "issue paper."

- Each of the teams read their "commitment papers" to explain their position on that issue and to allow opposing teams to record the commitments on their "Commitment Tally Sheets."

- The committed teams separate to private strategy centres to form an in favour and an against coalition; and the bargaining process begins.
Bargaining Procedures and Rules

- Envoys may be sent from these coalitions to make offers to "indifferent" teams, or the uncommitted teams may approach the coalitions directly.

- All agreements by an indifferent team to support a coalition must be in writing and are binding on the party who makes the offer.

- An "indifferent" team can only commit his support to one coalition, but can receive offers from both before deciding.

- After a previously stated period of time (15 minutes for the average group) the "indifferents" must decide which coalition they will join. They are not then allowed to enter the other group's strategy centre.

- Each coalition is allowed an additional 10 minutes to decide amongst themselves in secret from the other coalition what the final coalition vote will be.

- A chairman is chosen by the members of each coalition group to keep track of the total number of "power units" to be expended by his group on the issue.

- Both coalitions return to the central area and declare their power unit bid which is then turned in to the game supervisor.
Concluding Procedures

- The game supervisor now playing the role of democratic mayor announces the winning coalition and thus the verdict on the development proposal. A tie vote goes to the "against" coalition.

- Members of the winning coalition are paid any bonuses promised to them in their "commitment papers."

- If the proposal is adopted the game supervisor attaches the appropriate development symbol to the large map board.

- All teams are asked to declare their existing cash on hand to allow the others a chance to record it on their "Commitment Tally Sheets".

- The game supervisor then reads the second issue paper and the entire process repeats to determine the overall game winner.

Rules Governing The Use Of "Power Units"

- "Power Units" can not be traded from team to team. Each team must ration this scarce resource to ensure they have sufficient for both rounds.

- If a team is unable to meet one of its "Power Unit"
commitments, it is required to buy the necessary units from the game supervisor at a cost of 500 "Dunbar Dollars" per power unit.

- "Power Units" left over at the end of the second round are equivalent to 100 "Dunbar Dollars."
APPENDIX III

DETAILS OF THE FINAL VERSION OF PLANNING POWER PLAY

III-a ISSUE SHEETS (FINAL GAME VERSION)

Issue 1

A COMMERCIAL BEAUTIFICATION SCHEME

The City has stated its willingness to participate in a Street Beautification Programme in sections of the existing commercial development along Dunbar St. The proposal would involve such projects as sidewalk improvements, tree planting, new lighting and architectural services for design coordination of store fronts.

The costs would be borne equally by the City and all of the business premises along Dunbar Street - even those not able to afford a share of such costs. The costs of any building renovations would be paid entirely by the owners of the stores and would result in increased building assessments.

The City is not willing to share the cost of providing off-street parking as part of this programme so that the shortage of parking problem would not be improved by the plan.
APPENDIX III-a CONTINUED

Issue 2

RETIREMENT HOUSING COMPLEX

A development consortium has asked permission to change the zoning of a 3 acre (1 block) parcel of land to allow for a mixed density, residential retirement centre. The proposal would be located in one of the blocks adjacent to Dunbar Street between 25th and 33rd Avenues.

The complex would include both privately financed, medium density housing, and a 9 storey, 72 unit, apartment block sponsored and administered through C.M.H.C. to provide subsidized units for retired persons of low fixed incomes. The proposed private development would consist of 10 townhouse units and 60 garden apartment type units. Thus it is proposed to construct 142 dwelling units on this 3 acre site - a density of approximately 45 dwelling units per acre. This constitutes a substantial increase over the existing residential densities of approximately 10 dwelling units per acre.

The complex would also contain its own recreation facilities; and would provide meal service and health care for some of the units. The development would be required to provide visitor parking, and adequate landscaping of the grounds. The design and exterior facing of the buildings would also be subject to approval by the planning department.
Once again an interested group of residents in conjunction with the Dunbar Community Association have proposed that a public indoor swimming pool be built in the area. Council must decide whether to allow another Dunbar plebiscite on this issue, and are ready to listen to the views of the interest groups in the city.

The pool would be primarily for local area use and would be partially paid for by a Dunbar area tax levy as a local improvement. However, much of the cost would still be borne by the City and thus by all the city's taxpayers.

There is some debate also as to where the pool should be located. Many feel that it should be part of a neighbouring high school rather than near the community centre, so that school children can benefit from it during the day. On the other hand there are problems of evening parking etc. at the school site that make it less desirable. This decision will rest in the hands of the successful coalition if the proposal is adopted.
Issue 4

GARDEN APARTMENT REDEVELOPMENT SCHEME

Permission to change the zoning on a 3 acre site (1 block) is being sought by a developer; and the public is to decide whether they want this development.

The scheme would consist of a mix of 3 storey, "walk-up" apartments, 2 storey garden apartments, and townhouses placed within one existing city block. The development would be limited to 35 dwelling units per useable acre of land. That would mean that a maximum of 105 residences would be constructed on a block that would normally contain about 35 single family homes. However each dwelling unit would be smaller than the existing residences and would house fewer persons per unit. Thus the population of the block would probably only be doubled.

There would be controls placed on the development to ensure that townhouses would buffer any of the more dense development from the adjacent single family housing. One side of the development would have to be on a major artery (Dunbar or 16th), or adjacent to previously redeveloped areas. Some commercial uses would be allowed on the ground floor of apartments if they fronted on Dunbar Street or 16th Ave. In addition the development would be required to meet strict "performance" standards in regard to building facings, parking and landscaping.

The development will be located near the intersection of 16th Ave., and Dunbar Street in the area 1 block East or 2 blocks West of Dunbar Street, from 16th to 19th Avenues. If the proposal is adopted, the winning coalition will choose which location they want, and whether they wish to include commercial premises within it.
# APPENDIX III-b

## SUMMARY SHEET (FINAL GAME VERSION)

<table>
<thead>
<tr>
<th>INTEREST GROUP AND (INITIAL POWER)</th>
<th>A COMMERCIAL BEAUTIFICATION SCHEME</th>
<th>RETIREMENT HOUSING COMPLEX</th>
<th>COMMUNITY SWIMMING POOL</th>
<th>GARDEN APT. REDEVELOPMENT SCHEME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dunbar Businessmen (25)</td>
<td>Against</td>
<td>In Favour</td>
<td></td>
<td>In Favour</td>
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<td>Dunbar Homeowners (50)</td>
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<td>City Tax Assessor (45)</td>
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<td>City Engineering and traffic Experts (30)</td>
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<td>Real Estate Developer (35)</td>
<td>In Favour</td>
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<td>Central Business District (25)</td>
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<td>Other Residential Neighbourhoods(25)</td>
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## SUMMARY TOTALS

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APPENDIX III-c

INTRODUCTORY ROLE PAPERS (FINAL GAME VERSION)

The following eight pages exhibit the introductory role papers of the interest groups. These are read by the team at the outset of the game to help establish the broad role positions. The reader may enjoy trying to guess what the stated position of the role player will be on the four issues before reading that section of each paper.
APPENDIX III-c CONTINUED

Introductory Role Paper #1

DUNBAR BUSINESSMEN

We own or rent the retail and service establishments along Dunbar St. between 16th and 41st Avenues. Some of us are quite large and through advertising, draw many of our customers from an area larger than Dunbar. However a good number are engaged in purely local trade and are finding it harder every year to get by.

All of us still depend primarily on the patronage of Dunbar residents; yet all of us depend on patrons who drive to our stores because Dunbar is quite spread out. We certainly couldn’t survive on that small proportion who are close enough to walk to our stores. We find ourselves worshipping the car.

We pay substantial taxes, and since council is sympathetic to business interests we have some influence at City Hall despite the fact that we are not well organized. We have 25 Power Units with which to influence the outcome of the four impending issues.

You can expect us to:

1. vote Against the Commercial Beautification Scheme;
2. vote in Favour of the Retirement Complex;
3. be Indifferent on the Swimming Pool issue, and
4. vote in Favour of Garden Apartments.
Introductory Role Paper #2

DUNBAR HOMEOWNERS

I represent the single family home interests in Dunbar including both the homeowner residents and the local contractors who service our single family properties.

We admit it. We are a bit "old fashioned" - but darn it - we like Dunbar as it is. We like Vancouver and we like an area of single family homes and good recreation facilities to raise our kids in. We want to stay here and keep it the same - at least until our children are grown. Some of us realize that higher density is essential to keep taxes down - but can't it go somewhere else?

For most of us also, our house is our largest investment and it is worth a lot if Dunbar remains as a good single family area. Expect us then, to fight hard to maintain property values, You can expect us to:

1. be Indifferent on the Beautification Scheme;  
2. vote Against the Retirement Complex;  
3. vote in Favour of the Swimming Pool, and  
4. vote Against the Garden Apartments.

We are the main spokesmen for Dunbar and its ten thousand voters - and because we are well organized we have considerable influence at City Hall concerning local matters. We have 50 Power Units to aid us in achieving our success formula.
DUNBAR COMMUNITY ASSOCIATION

The duty of our association is to operate the Dunbar Community Centre in the best possible way to satisfy the recreational needs of the residents in Dunbar; and to a lesser extent, to anyone in the entire city. We want to make the centre useful and used by people.

Of course, we are always short of facilities, and we shall use our influence to both improve the services of existing facilities, and to expand them if possible.

We are partially supported by City Hall, and we have quite a strong residents organization behind us. As a result we have 25 Power Units with which to influence the politicians on these four issues.

You can expect us to:

1. be Indifferent on the Beautification Scheme;
2. be Indifferent on the Retirement Complex;
3. vote In Favour of the Swimming Pool, and
4. vote Against Garden Apartments.
APPENDIX III-c CONTINUED

Introductory Role Paper #4

CITY TAX ASSESSOR

My concern is a citywide problem - that of creating and maintaining high property assessments which result in larger tax revenues for the city.

Higher residential densities or a commercial development are good news to me no matter where they go. As long as a development increases the assessments on a particular piece of ground without decreasing the value of surrounding areas, I will support it.

Because of the urgent city need for tax revenue I am quite influential at City Hall - even on local issues. I have 4$ Power Units.

You can expect me to:

1. vote In Favour of the Beautification Scheme;
2. vote In Favour of the Retirement Complex;
3. be Indifferent on the Swimming Pool question, and
4. vote In Favour of the Garden Apartments.
CITY ENGINEERING AND TRAFFIC EXPERTS

Our concern is, once again, citywide since our services must be planned and maintained on a citywide scale.

We don't dislike the idea of local neighbourhoods, but we MUST plan our sewer and road networks in the most efficient form for the City as a whole - not just the individual neighbourhoods.

You can expect us to make strong commitments on citywide issues, but we will be less concerned with purely local ones.

Because of the essential citywide service we perform we have quite a direct influence with City Council. We have 30 Power Units to help ensure that our citywide goals are followed.

You can expect us to:

1. vote Against the Beautification Scheme;
2. be Indifferent on the Retirement Complex;
3. vote Against the Swimming Pool, and
4. vote Against the Garden Apartments.
APPENDIX III-c CONTINUED

Introductory Role Paper #6

REAL ESTATE DEVELOPER AND CONSTRUCTION INTERESTS

We are not really as bad as some people make us out. Sure we make large profits when times are good - but times can get pretty bad too.

I'd like to think that in this age of housing shortages, we are in fact fulfilling a valuable service by providing comfortable new dwelling units.

We are businessmen, and we try to make a profit on the actual construction of buildings, and also through increasing the value of land by making more economically productive use of it. But what the heck - everyone else is making profits today aren't they?

In Dunbar we think we can make a reasonable profit in both ways; and since people want to live here in apartments, we will naturally attempt to build them here.

We have a few friends around town and the City Tax Assessor is on our side, so that we have 35 Power Units to help us get our wishes.

You can expect us to:

1. vote In Favour of the Beautification Scheme;
2. vote In Favour of the Retirement Complex;
3. be Indifferent to the Swimming Pool, and
4. vote In Favour of Garden Apartments.
THE CENTRAL BUSINESS DISTRICT

I represent a substantial power group in the City of Vancouver. We have businesses in the downtown area. Many are old establishments and we thus have a strong desire to keep the C.B.D. a vital area, and the true core of our city.

Through groups like the Board of Trade we are quite an influential group at City Hall, and will have 25 Power Units to ensure that Dunbar development does not upset our concept of a strong city core.

You can expect us to:

1. vote Against a Beautification Scheme;
2. vote Against a Retirement Complex;
3. vote Against a Swimming Pool, and
4. be Indifferent about Garden Apartments.
APPENDIX III-c CONTINUED

Introductory Role Paper #8

OTHER RESIDENTIAL NEIGHBOURHOODS OF VANCOUVER

I represent the residents of the many other residential areas of Vancouver. We all have our own local interests and concerns, and some of us too are planning our own communities. Thus, if Dunbar's plans threaten our position or the good of the City as a whole, we will be in opposition.

We all vote too, and many of us do have the ear of the councilmen. Our influence is naturally most effective in our own areas, but we do have 25 Power Units to help ensure that Dunbar does not act in a manner that could be detrimental to our interests.

You can expect us to:

1. be Indifferent about a Beautification Scheme;
2. vote Against a Retirement Complex;
3. vote Against a Swimming Pool, and
4. be Indifferent about Garden Apartments.
APPENDIX III-d

SAMPLE OF THE ROLE COMMITMENT PAPERS (FINAL GAME VERSION)

The following 15 pages contain examples of the total of 32 "commitment papers" which verbally justify an interest group's position on an issue. Several examples are included pertaining to each of the four issues.

The "commitment papers" are read by each team previous to each round of bargaining and serve to provide insights into how the various groups will react to specific situations. They are also designed to promote discussion of their own validity. The reader may be interested in reading several of them to test whether these statements are in accord with his beliefs of how the roles should react.
A COMMERCIAL BEAUTIFICATION SCHEME

We have mixed feelings on this issue. Certainly we would like to see the shops and sidewalks along Dunbar Street improved; yet such a programme will only attract more cars and add to the existing dangers of that street for ourselves and our children.

In addition, this type of project might increase the pressure for new, higher density residential development adjacent to the shopping areas. We can't support the idea then; yet we don't feel committed to oppose it.

We will remain INDIFFERENT.
A COMMERCIAL BEAUTIFICATION SCHEME

This proposal will not help us directly since it really only involves the renovation of old buildings which is hardly our line. However, it is a change; and it might well be a change for the best - for us.

A street improvement and store renovation project like this should put a spark into the Dunbar land market that would pave the way to further development. A small shopping centre or higher density housing might be considered for this area as a result; and we would be there to benefit.

We must vote In FAVOUR of this potential catalyst to new development.
APPENDIX III-d CONTINUED

7-1 The Central Business District

A COMMERCIAL BEAUTIFICATION SCHEME

What absolute rot! To spend City money on such a local area development is sheer lunacy. Beautification plans should be used only for projects that ALL the city's residents can benefit from - like our Granville Street "theatre row". There are a lot more streets downtown that need beautification.

If we continue in this manner we will have a city divided up into a lot of self sufficient little communities. Someone should tell the planning department that the village square concept died when metropolitan cities were born. What we need is a strong vital city core - not a lot of parochial village centres.

We must vote AGAINST.
Dunbar Businessmen

RETIREMENT HOUSING COMPLEX

This complex will be located near Dunbar Street, and thus increase the number of what we like to call captive clients - those people who will use our services because we are so nearby and thus convenient.

We realize that this sort of retirement complex may not generate a lot of business, but having 142 dwelling units concentrated within one block of our stores just can't be anything but an improvement.

We must vote In FAVOUR of this proposal.
APPENDIX III-d CONTINUED

5-2 City Engineering and Traffic Experts

RETIREMENT HOUSING COMPLEX

We have been assured that this development will not cost the City a cent. The developers will pay for all connections to sewer and water services; they will provide their own parking area, and they will do all their own landscaping. This development will not generate a great deal of automobile traffic so our road system should not be affected.

As a result we have no valid objections to the project.

We will remain INDIFFERENT.
The design and size of this development sounds fine. There is only one thing wrong with it - it should be located downtown. We cannot agree with the policy of scattering our elderly citizens all over Vancouver where long bus rides are necessary to get to where most of them would like to go often - downtown.

Developments of this scale, especially when they contain a high rise apartment, should be reserved for the developing core area fringes such as False Creek. This is just another example of dispersal planning, and we don't like it.

We must vote AGAINST.
COMMUNITY SWIMMING POOL

This proposal could do nothing but good for Dunbar in terms of making it a more desirable family area - and this should keep our property values high.

There is some dissension in our ranks, because of the older residents who are not willing to pay the local improvement tax increases that would be levied. However, the families in the area have been strong supporters of this idea for years. Their children need the kind of exercise that a pool provides, and it is a terrible inconvenience to have to drive their children to more distant pools.

We will vote In FAVOUR of this proposal.
Naturally we are in favour of this proposal. It has always been one of the most lamented shortcomings of our programme. We would prefer to have the new pool adjacent to the existing Community Centre if the proposal is accepted, as it would facilitate our co-ordination of programmes.

We must vote In FAVOUR.
COMMUNITY SWIMMING POOL

This is another of those issues that is fine for the community, but not much good for me.

The pool will be tax exempt wherever it goes, and I doubt if it will be a significant factor in raising adjacent property assessments.

I will be INDIFFERENT.
COMMUNITY SWIMMING POOL

Most of us don’t have a decent place for our children to swim - not even a large, centrally located, citywide pool. Why then should we pay extra city taxes to help build and maintain one in Dunbar when we have just as great, if not a greater need for one?

Once again it seems like unfair treatment being given to one area just because they are better organized and more articulate in their criticism than most of us.

We must vote AGAINST.
Dunbar Businessmen

GARDEN APARTMENT REDEVELOPMENT SCHEME

Twice the number of potential customers close to our 16th Avenue stores? - of course we will support this proposal! We just wish it would happen near the 28th and 41st Avenue nodes as well.

The new commercial premises if built, would be welcomed as a further drawing card for the area generally. We have been informed that local merchants would be given first opportunity to move into these new premises, and several of us are interested.

We must vote In FAVOUR.
GARDEN APARTMENT REDEVELOPMENT SCHEME

Once again our main goal is to keep ANY higher density development out of the area; and our association is fully united in this. This would only be the first step to wholesale redevelopment of our area. It may be fine for those families wanting rented accommodation but what about us? We were here first, and surely we have the right to stay and maintain the area as we want it.

We must vote AGAINST.
I can't foresee any problems to my department from this proposal - and it certainly will provide new assessments.

I favour development on this block by block basis because it provides substantial new assessments, yet it has a minimal effect on surrounding property values. This proposal, ringed with townhouses, should blend in with the existing homes very well.

I must vote In FAVOUR.
Once again this proposal is the assessor's dream but our dilemma. It will be located close to, and thus feed over 100 cars per day into, what is becoming the worst traffic tie-up in the area - 16th Avenue and Dunbar Street. It it allows commercial premises without requiring parking the traffic will be further congested by increased on-street parking.

In addition, it may be necessary to provide special crossings for school children living in this development. The developers will pay their own servicing and landscaping costs; but the development still promises to require quite a bit of money from our departments.

We must vote AGAINST.
APPENDIX III-d CONTINUED

8-4 Other Residential Neighbourhoods

GARDEN APARTMENT REDEVELOPMENT SCHEME

Many of us already have similar developments in our areas and are beginning to understand the need for these increased densities in the central city of a growing metropolis.

We can't see what all the fuss is about in Dunbar. This proposal is a lot better than many of the developments that crept into our areas. We don't then, feel committed to take a stand on this issue.

We will remain INDIFFERENT unless we have previously promised our support to some other interest group.
APPENDIX III-e

SUMMARY OF POSSIBLE TEAM DUTIES (FINAL GAME VERSION)

(1) Chief Spokesman. This player could be responsible for reading the position papers to the rest of the group.

(2) Chief Diplomat. This team member could be responsible for carrying on the bargaining in the coalition meetings. He would have to work closely with the "strategy consultant."

(3) Strategy Consultants. Their duties could involve the mapping out of strategies for each round and in some cases, assisting the "diplomat." They would be responsible for knowing all the rules and for determining the success formula. They would suggest to the "diplomat" the best alliances to make, and would set the range of "power units" to be contributed to each round of the bargaining process.
Initial Procedures

- Players choose their own role. (interest group)

- Each individual or team representing one of the eight interest groups is given the appropriate number of "power unit" cards for that role; one introductory role paper; four "commitment papers", and several copies of the "summary sheet."

- The game supervisor describes the local area of Dunbar with reference to the large map board showing the area in land use map form.

- The teams make up the success formulas and hand one copy in to the game supervisor to be kept for future scoring purposes.

- The success formula must give a minimum of 3 points to each of the issues the team is committed on. No points can be given to issues where the team remains indifferent. The success formula must not add up to more than thirty points for any team.
- The game supervisor reads the first "issue paper."

- Each of the teams read their "commitment papers" to explain their position on that issue.

- The committed teams separate to private strategy centres to form an in favour and an against coalition and the bargaining process begins.

Bargaining Procedures and Rules

- Envoys may be sent from these coalitions to make offers to "indifferent" teams, or the uncommitted teams may approach the coalitions directly.

- Agreements may be made for promise of support in any future round.

- All agreements must be in writing and are binding on both parties. A person who breaks one of these contracts can be called up in front of court (the game supervisor) by the injured party at the end of that round and fined 5 success points. However the court has no power to force the guilty group to produce the promised "power units."
- An "indifferent" team can commit his support to both coalitions during the first stage of bargaining (20 minutes for the average group), but can only sit in on the second stage of bargaining with one of the coalitions.

- Coalition members committed to vote on this issue by their "commitment paper" are required to vote at least one "power unit".

- A chairman is chosen by the members of each coalition group to keep track of the total number of "power units" to be expended by his group on the issue.

- Both coalitions return to the central area and declare their power unit bid which is then turned in to the game supervisor.

Concluding Procedures

- The game supervisor, now playing the role of democratic mayor, announces the winning coalition and thus the verdict on the development proposal. A tie vote goes to the against coalition.

- The game supervisor posts the success points gained by the members of the winning coalition on the score board.
If the proposal is adopted the game supervisor attaches the appropriate development symbol to the large game board.

The game supervisor then reads the second issue paper and the entire process repeats until the four rounds are completed.

"Power Units" have no value at the end of the game.
APPENDIX III-g

LIST OF PROPS (FINAL GAME VERSION)

(1) Map Board - plywood with map painted over wood and covered by plastic acetate, measures approximately 2' x 3'.

(2) Map Board symbols to represent developments.

(3) Issue Board - paper board sheets summarizing major features of each issue proposed.

(4) Score Board - paperboard marked into a matrix with the teams along the top and the issues listed down the left hand side. This is most easily drawn on a blackboard if available.

(5) Issue Sheets - summary of issues to be discussed - typed and in plastic envelope for easy reading by the game supervisor.

(6) Summary Sheets - example in this Appendix, section b.

(7) Introductory Role Paper - typed on white paper and enclosed in 6" x 9" plastic envelopes.

(8) Role Commitment Papers - typed on various shades of paper depending on the issue they refer to, and enclosed in 6" x 9" plastic envelopes.
(9) Power Units - printed paper currency in denominations of 1 and 5.

(10) Bargain Pads - small paper pads for writing of agreements

(11) Name Tags - printed paper tags for players to wear and to mark their place at the central table.
In the last month approximately how many times have you played:

(a) bridge
(b) other card games
(c) board games

Would you say that last month you played these games:

(a) more than usual
(b) about the same as usual
(c) less than usual

In the game just played did you feel that the positions that you were given were realistic? (i.e. close to what you think the position would be in real life)

Yes ________ No ________ Sometimes ________

When did you feel that you knew how to play this game?

(a) before the first bargaining session
(b) after round one (first bargaining session)
(c) after round two
(d) after round 3 or 4
(e) not at all

Did you find this game entertaining?

Very Entertaining
Moderately Entertaining
Moderately Dull
Dull
No opinion
6. (a) Do you feel that you gained any understanding of the municipal political process from playing "Power Play"?

Yes ______  No ______  Uncertain ______

(b) If Yes - What was the main lesson that you learned from playing this game?

Specify: ___________________________

______________________________

______________________________

7. What interest group did you represent in this game?

Specify: ___________________________

8. How many people (including yourself) were there playing this role?

Just myself _____ Two _____ Three _____ Four or more _____

9. (a) What duties did you personally take on as part of the team? (e.g. - read role papers, chief bargainer)

Specify: ___________________________

______________________________

(b) How many success points did your team achieve?

Please state number: ____________
APPENDIX IV-a CONTINUED

10. Did you feel that the interest group that you represented had as good a chance to win as most of the other interest groups?

   (a) Yes - the game gave us all an equal chance. 
   (b) Generally correct but my role was a bit more difficult. 
   (c) Generally correct but my role was a bit easier to win with. 
   (d) No - the interest groups were unevenly matched.

11. Do you think now, (after playing the game) that citizen’s views on the development of their local area, are listened to by City Council.

   Yes _________ Not Sure _________ No _________

12. Is this what you believed before the game?

   Yes _________ No _________ Uncertain _________

13. Did you feel that you used most of your concentration to play the first 2 rounds of "Power Play"?

   (a) all my concentration 
   (b) most of my concentration 
   (c) a moderate amount 
   (d) I didn’t concentrate very much at all

14. Did your level of concentration change in the LAST 2 rounds?

   Increased 
   Remained the same 
   Decreased 
   Don’t know
15. Do you feel that the political bargaining in this game is a part of City Planning? Why?

Specify:

16. The respondent is:

(a) Male _________  (b) Female _________

17. Age (a) Under 24 years.
(b) 25-54 years.
(c) 55-64 Years.
(d) 65 & years.

18. The respondents occupation is: (please specify) ____________

Thank you for your help in improvement of this game.
"PLANNING POWER PLAY" RETENTION QUIZ - APPENDIX IV-b
(Supplementary Testing Tool for Final Game Version)

The questions below have been formulated to test your memory of the game. Don't worry if you are unable to remember some of the answers asked for - some of them were purposely made quite difficult.

1. In Round 3 (the 2nd last of Power Play) which issue was being discussed?

Specify: ________________________________

2. What was the decision on this issue?

In Favour _____  Against _____  Can't Remember _____

3. In this round the City Tax Assessor was initially Indifferent. Can you remember why?

Specify: ________________________________

4. Did the City Tax Assessor end up voting?

Yes - he voted in Favour
Yes - he voted Against
No - he remained Indifferent
Can't Remember

5. Can you remember why the Tax Assessor ended up voting as he did?

Specify: ________________________________

6. How did the Dunbar Homeowners vote on issue number 3?

In Favour _____  Against _____  Indiff. _____

Can't Remember
APPENDIX IV-b CONTINUED

7. Can you please state what reason they gave for their stand (if you can't remember write don't know)

Specify: ______________________________________

8. In this same round can you remember how the "Other Residential Neighbourhoods" voted?

In Favour ______ Against ______ Indifferent ______ Can't Remember ______

9. Please state the reason they gave for their stand (if you can't remember write Don't Know)

Specify: ______________________________________

______________________________________________

______________________________________________

10. In round one (the Commercial Beautification Plan) the Real Estate Developer voted In Favour despite the fact that this proposal did not call for any new buildings.

Would you please state the reason he gave for his stand. (if you can't remember, write Don't Know)

Specify: ______________________________________

______________________________________________

______________________________________________