

against the requirement for independence in the model. The offence of human interference here, however, is nothing like as great as in the case discussed earlier where the controller meddles with the actual processing of the model, and thus pollutes its independence as an arbiter.

The alternative to human involvement is the development of an artificial intelligence based solution. The production of software to translate informal statements of policy, information requirements, objectives and decisions into directly processible form would be a great step forward for the business game.

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THE SELF-DIRECTING GROUP: A NEGLECTED ISSUE IN GAMING AND SIMULATION

Jeff Hearn

Abstract: The central contention of this article is that, within much gaming and simulation, an important though usually implicit issue is the development of the self-directing group. The first main section explores the nature and definition of the self-directing group. The second considers ways of developing the self-directing group, both prior to and within gaming and simulation. The final section examines the impact of the self-directing group on the individual student and the educational environment.

Introduction

Many games and simulations either depend upon or are greatly affected by the form of group process. Usually, though by no means always, the group process that is sought involves relatively high levels of activity, creativity and communication. However, for many games and simulations, and particularly those that are open-ended, more than just an active, a lively group is required. The extra issue is the ability of the group to be self-directing to a greater or lesser extent. Indeed, although many games and simulations have the advantage of illustrating to a relatively unsophisticated group certain ideas or insights in a more direct way than would be possible in a lecture, there is still a sense in which they may or may not 'take-off'. A game can either just be played with the result, presumably, that the intended 'lesson' is learned, or it can be played creatively producing benefits twice over, some as intended by the designer of the game and some developed by the participants by their own interest and commitment. It is for this reason that the idea of self-direction in the group is an important, though often neglected, issue in gaming and simulation.

In this article I first want to say a little more on the definition of self-direction in this context, then examine ways of developing self-direction both prior to and within games and simulations, and finally discuss the impact of the self-directing group on both the individual student and the educational environment.

What is the self-directing group?

The self-directing group is not to be confused with the leaderless group or the unstructured group or the structureless group. Self-directing groups may at various stages be led or temporarily leaderless, and may be more or less structured. A relatively structureless group has the danger of being relatively directionless, and may even harbour considerable abuses of power (Freeman, 1970). More important is the nature and quality of the interactions between the members of the group: Is there a reasonable level of equality between the members?; Do a small number of members

tend to dominate discussion?; Are others left out in the cold?; Do people feel satisfied or frustrated at the end of group sessions?; Do different people take the initiative on different occasions?; (and, most important of all) Is there sufficient interest or commitment in the group for initiative to be taken without prompting from the outside?

While all of these issues are relevant to self-direction, there is no single best way to characterize a self-directing group. There is no such thing as the ideal self-directing group. The notion of a self-directing group is merely a shorthand for a number of qualities or characteristics of the group — a high level of participation, equality, and purposefulness, and above all the expression of initiative from *within* the group's own resources. The precise ways in which this can be achieved are various. Self-direction may come about by a happy coincidence of people and personalities; but more usually it is the result of a prolonged series of group discussions and/or exercises, in which members of the group test out each other and renegotiate their respective power and influence over each other. An appropriate contrast can sometimes be made in an introductory session between a more active, more self-directed group and a more passive, more externally-directed group. This process can often be assisted in the early stages by icebreaker games (Jones and Pfeiffer, 1981) or more adventurous exercises borrowed from self-help therapy (Ernst and Goodison, 1981).

In developing self-direction, a variety of problems may arise — of equality between members, of expressing and coping with emotions, and of finding time (Mansbridge, 1973). Self-direction, like the facilitation of participation in general, takes time. Thus apart from the occurrence of happy coincidences, the self-directing group is only likely to develop where time is available. This means that not only must there be the physical resources of time, but also an emotional commitment to that time. To close off the use of this time too soon is to limit self-direction. In the remainder of this article it is assumed that there is a staff member responsible for the student group and committed to the implementation of self-direction. The fact that the staff member may act as group leader, especially in early sessions presents a number of contradictions for all concerned.

In other words, self-direction in the group is necessarily facilitated by the leadership of the staff member. Facilitative group leadership itself involves a number of different facets and alternative styles and methods of working. Central issues include:

- the initiation of points for discussion and exploration;
- the establishment of a model of behaviour in the group;
- the display of empathy;
- the engendering of trust;
- the facilitation of the flow of communication.

(Tannenbaum, Weshler and Massarik, 1961; Bolman, 1976)

However, these broad facets of facilitative leadership hide many further complexities, such as the dangers of the leader indulging in *too much* emotional stimulation or self-disclosure (Lieberman *et al.*, 1973); and

differences in the extent to which the leader structures the early stages of the group or refuses to do so thus posing '... a challenge to which the members must react by immediately generating ways of being with each other for themselves' (Lakin and Costanzo, 1975: 216).

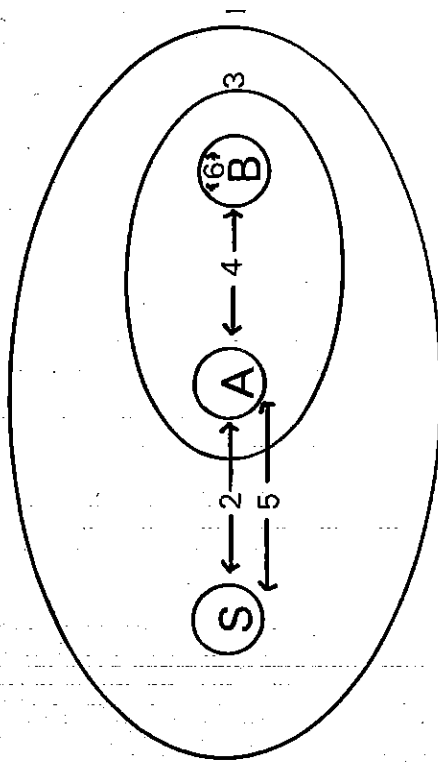
An additional complication is that within an educational sequence such groups may be at least temporarily leaderless or more precisely led by a variety of leaders rather than just the staff member. This may be of great importance where a range of educational methods are used including group exercises or games, both with and without the staff member's presence. The self-directing group is one that is able to work together to act to change a given situation in a creative way in general accord with the variety of wishes of the group. The self-directing group shows initiative in capitalizing upon the potential of a given situation. It can sometimes act in almost an exploitative, even predatory, way. In gaming, the self-directing group *acts on* the particular game or simulation, and effectively takes it apart. It extracts from the game or simulation the most that the particular situation can offer. A self-directing group can sometimes demolish a game — turn the game into a fiasco but still use it as a valuable learning experience. Rather than merely playing a series of rounds, attention may, for example, be directed towards rewriting the rules of the game. The game is left as a skeleton, the group flourishes on the flesh.

A final word on definition must be on the question of size. The self-directing group is not of a specific or even a fixed size, but there are clearly upper limits. Beyond a certain size, reasonable equality in participation and direction becomes difficult, at least not without rather cumbersome procedures. Some authors (Hopper and Weyman, 1975) suggest 16 as an important divide, beyond which members begin to experience the group in a different, and perhaps increasingly impersonal and rarified way. This is clearly not an absolute figure, though in my own experience I have only worked with larger groups which I would label self-directing on a very small number of occasions. Self-direction in a group of, say, more than 20 is not impossible, but extremely difficult to achieve and maintain. This may be partly for simple structural reasons, such as there is less time for everyone to speak and more chances of breakdowns in communication. However, it may also lie in cultural reasons, for most of us associate such large groups with relatively formal classroom situations at school, which are definitely externally (ie teacher) led. To open up such large groups to even a moderate degree of self-direction can be quite threatening to some individuals, which is subsequently coped with through fantasy and projection (Main, 1975).

Developing the self-directing group

(a) *Prior to gaming and simulation*

A fundamental issue to be faced prior to gaming and simulation is the impact of the educational institution and educational environment on the group process. The integration problem (Irwin, 1981) is both a procedural question — of how self-direction and gaming link with other parts of the educational sequence — and a question of educational norms and values towards both game-playing and student self-direction.



1. Unification of whole group, including staff, at all costs.
2. Competition between staff and student(s).
3. Unification of student group at all costs.
4. Competition within student group.
5. Unification of staff and part of group.
6. Ambivalence within individuals.

Figure 1. Pressures militating against the self-directing group

The staff member should be under no illusion as to his or her power and authority. These cannot be reduced or abolished simply by denying them or refusing to discuss them. More useful is a combination of stark frankness in clarifying the nature and limits of staff power, for example, over assessment, together with a continuing attempt to demystify unwarranted authority that tends to diminish the group's reliance on its own resources.

Getting such issues straight, minimizing fantasies and staff power and so on are a necessary, but not a sufficient, condition for self-direction. In addition, members of a group may often go to great lengths to avoid self-direction. Two common diversions are, first, excessive conformity

and interdependence, and, second, excessive competition and dependence (Bennis, 1964). The first denies there is any disagreement at all in the group; the second denies there is any basis for agreement. If either of these assumptions is fully borne out, there is little prospect for the growth of self-direction. These tendencies are illustrated in Figure 1.

Thus one of the main tasks of anyone concerned to develop the self-directing group is to recognize the signs of these two tendencies, and take steps to counteract them. Thus on the one hand the group should be encouraged to acknowledge actual and potential cleavages within it; while on the other the group should be encouraged to seek out possible means of communication when there appears to be no basis whatsoever. Staff who are concerned to facilitate self-direction have these double limits to work within, and in so doing to help the group itself to work within them.

On this first count, this involves staff learning to look for and analyse divisions within the group, to gently but firmly assist in their exposure, expression and discussion, to give support to those members who may tentatively be trying to do the same. Some of these divisions may be obvious enough, such as race, age or class background. One might suppose that sexual divisions might be even more readily recognized and confronted, but in fact this may be one of the most difficult and entrenched forms of division within groups (Mayes, 1979). Opening up, let alone challenging, the arrangement of power and communication between the sexes in a group may bring a considerable and volatile reaction. Fear of, and indeed fantasy about, such unpredictabilities may in itself force a preference for suppression of the sexual issue amongst some group members.

On the second count, staff have responsibility for maintaining communication throughout the course of conflicts that do arise. This is not meant in the crude sense of acting as some kind of referee or arbitrator, but rather being alive to the ways in which communication can operate in the group. This therefore does not entail a denial of competition but attempts to enable the group to recognize the nature of the conflict that does take place. This may mean that certain types or aspects of conflict are indeed not resolvable, while other types or aspects are projected by some member, rather than felt by all concerned. The task of the staff is to assist in the development and elaboration of the process rather than the content of communication. Thus, for example, in some groups non-verbal communication may be an important and even primary means of communication and it will be this that will need to be worked upon. Verbalizing conflict and competition does not necessarily reduce or resolve it.

Throughout this dual process towards self-direction, there are also a number of general points to be borne in mind by staff. First is the need to minimize staff intervention. By definition, staff intervention in the development of the self-directing group is something of a contradiction. The temptation to intervene prematurely is a sure way of defeating self-direction. Whenever possible the group should be turned onto its own resources. Each point of conflict, difficulty or blocking provides an

opportunity for the incipient growth of self-direction. By throwing the group back on its own resources, group members both experience some degree of self-direction and become assured about the possibility of its further extension. Self-direction can in this way become something of a self-fulfilling prophecy. However, the picture is complicated by the need for staff to also recognize and respond to the process of group development. Here I am thinking of the way groups commonly go through developmental stages, and the different roles that will consequently be needed for staff at different times. Many of the conceptual schemes of group development emphasize the acute variations in power relations, dependence and interdependence within the group at different stages. An awareness of this kind of interpretation of group process is certainly useful, if not absolutely essential, for staff. I will now move on to consider the question of self-direction within games and simulations.

(b) *Within gaming and simulation*

Different games and simulations clearly allow or facilitate different degrees of group self-direction. Thus a first issue to consider is that of game design and the principles that are likely to be most usefully borne in mind. To take some extreme cases, a parlour game like Ludo is not likely to generate much self-direction, while another like charades is custom built for creativity. No doubt a very long list of such principles could be generated, but here I consider just three: (i) grounding in group process; (ii) differentiation in game structure; and (iii) elaboration.

The first point means that the game or simulation must have as a central element the development and display of group process. Individualized games or some excessively programmed computer simulations are unlikely to facilitate group process.

The second point is more debatable, in that it is suggested that some differentiation in game structure is likely to be of use. Those games and simulations which are 'of a whole', that is are not broken down into different types of component sequences, rounds, stages or units, are likely to have particular limitations. The holistic, uniform game, such as those board games which consist simply of each player taking his or her turn *ad nauseam*, are unlikely to generate the time and space needed for self-direction. An ideal arrangement is where there are two types of rounds, one more structured, one less structured, which alternate with each other. In the absence of any better structure the simplest modification to be made to many games is simply the insertion of compulsory breaks of a few minutes within the game, in which players must record their past experiences and/or future intentions. However, a further difficulty which may arise here is the ability of the student to suspend disbelief, to slip in and out of assigned roles. This aspect may itself deserve attention during feedback sessions.

The third suggested principle is elaboration, by which I mean the possibility within the structure of the game for players themselves to initiate and carry forward changes in the game's form and content. The easiest way to achieve this is for the game designer to leave within the

structure of the game uncertainties or ambiguities which may have to be resolved in the course of the play. Thus, for example, in THE CUTS GAME (Hearn and Hitch, 1977), a game which deals with local authority decision-making over cuts in services, there is built-in uncertainty over the relative authority of the 'clerk' and the 'chairman'. The uncertainty here also has a substantive significance in that public sector cuts and cutting have in practice raised many novel situations, where there are no clear guidelines or precedents. It should perhaps be added that even where a game is designed with an apparently low level of possible elaboration, a fully self-directing group may take the game by storm, redesign it regardless and probably learn more than was intended or conceived in the first place.

In the actual operation of games and simulations much of what has already been said about the development of self-direction prior to gaming still applies, yet more so. Those games that have a staff leader or coordinator have a necessary contradiction in their play. Clearly the general rule for staff during play is the minimizing of overt intervention, although staff may act as observers and so contribute to subsequent feedback.

A final point in this section is the possibility of using and developing frame games (Thiagarajan and Stolovitch, 1979), games-generating games (Duke and Greenblat, 1979) and relatively content-less 'games for all seasons' (Jaques, 1981) as a means towards self-direction. Rather than games being an instrumental means to a remote end, they simultaneously become a concrete end and a means of achieving it. Gaming, game design and self-direction become one and the same process.

The impact of the self-directing group

By definition, self-direction is not easily containable. Once developed its effects tend to spill over into other areas. These effects can be conveniently considered at the level of both the individual and the educational environment.

(a) *On the individual student*

Clearly the impact of the self-directing group will differ for different individuals, but certain broad issues and possibilities will probably be raised by this sort of experience. First, and most importantly, the experience of being in a self-directing group is likely to be, if not completely novel, then at least highly unusual compared with other learning situations. This can therefore generate various psychological reactions usually associated with periods of transition: limbo, identification with the significant events, even a sense of community with one's fellows. There may indeed be a good deal of personal ambivalence towards the experience, perhaps a general sense of achievement, self-confidence and increased social skill, together with a more detached, even cynical attitude to the educational process. Some of the mystique of learning may have gone.

Additionally there are a number of likely effects that come from the experience of intensive group process. Writing on the aftermath of T-groups, Smith and Moscow (1966) summarize these as increased

openness, increased interdependence, and increased willingness to take risks. It would be wrong to see all impacts on the individual as positive and welcomed. Greenblat (1980) in particular has drawn attention to the negative effects of some group games. She writes: 'We may argue that openness and honesty and truth are important, but do students have the right to decide how much openness and honesty and truth they want in their friendship and associated groups?' The self-directing group is likely to fully expose this contradiction — the conditions facilitating self-direction can also open up the possibility of even greater domination of particular individuals.

(b) On the educational environment

It is here that perhaps the greatest difficulties lie, for there are still few courses modelled wholly or even in large part upon participative, proactive education. The self-directing group can therefore meet more than its fair share of frustration when faced with the educational realities of other parts of a course. A typical series of developments is that initially self-direction in one part of a course has spin-offs on other parts in terms of demands for more active participation, self-run seminars and so on, but in the long run and particularly prior to final course examinations disillusionment quite reasonably sets in. It is at this point that revision games can become an important vehicle for learning (Hearn, 1979, 1980). Jones (1982) has recently taken this line of development further with suggestions for simulations as examinations.

The self-directing group has implications not only for the immediate educational process but also for the broader institution and its management. Self-direction in educational groups is clearly most compatible with participative, open styles of management and organization. Within the educational context, the self-directing group may well highlight the cultural contradictions between traditional management methods and participative learning (Davies, 1976). Self-directing groups may be more fun, but they do not lead to a quiet life.

Concluding remarks

This article has attempted to raise one major neglected issue — the self-directing group — together with a number of related issues around that theme. Inevitably, there are other points that may demand attention that have not been pursued here: the relationship of adopted roles and roles as both students and staff; the question of two or more staff working together; the cumulative effect of different sorts of group experiences over time; the aftermath of a game that appears to have 'gone badly wrong'; and so on. These issues and the others already raised cannot be simply resolved as an intellectual exercise or by meticulous pre-planning. Just as the group is forced to draw on all of its resources, so too is the staff member.

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THE PRODUCTION FACTOR GAME: A SIMULATION TO ILLUSTRATE THE COMBINATION OF FACTORS INVOLVED IN THE PRODUCTION PROCESS

Heinz Naetscher

Abstract: The PRODUCTION FACTOR GAME is an economics-based game designed to illustrate both the subject-related and social aspects of the various factors involved in the production process. The game and its procedures are described in some detail.

Simulation games in the classroom

The use of simulation games in teaching is gradually gaining momentum. There are two main reasons why this method has been slow to achieve widespread admittance into the classroom. First, during their training, many teachers have not encountered simulation and gaming techniques and subsequently view such methods with scepticism. Second, the range of available simulation games is often relatively poor, and those which are available may be expensive.

However, there are several sound educational reasons why the use of simulation/gaming methods have a role to play in the teaching process. They can, for example, be used to achieve a number of both social and subject-related learning aims at one time. In particular, the social aspects of games and simulations are often an important reason for the choice of a game. Games can be used to generate interactive and cooperative behaviour among the participants in a way which other methods cannot. This interactive aspect, which is often neglected in the classroom, can, for example, be important in promoting favourable attitudes towards discussion and compromise.

It is these social aspects of education which the PRODUCTION FACTOR GAME is intended to develop. It is hoped that after completing the game, students will be better able to cope with the real life difficulties which they might face in a working environment.

The PRODUCTION FACTOR GAME

Background

The PRODUCTION FACTOR GAME is an economics-based interactive exercise for use in schools and colleges.

The concept of the three primary production factors, namely work, land and capital are at the core of the simulation game. Through active learning, the students should also become aware of the fourth derived factor organization and its associated relations. Within the context of the Western European economic system, the PRODUCTION FACTOR GAME deals with the special interdependencies in the social market economy. The