EFFECTS OF COMPETITION ON LEARNING IN BUSINESS GAMES

by

Jane Lundy

In partial fulfilment of the requirements for the degree of Doctor of Philosophy, University of Surrey 1985.
DEDICATION

To my father.
ABSTRACT

At the beginning of this study I wanted to discover what effects competition in games and simulations had on learning. I also wished to gain a deeper understanding of how people learn from games so that I could produce findings which would be useful to practitioners of games and simulations.

My research has revealed that competition can become too great an influence on students' decisions and behaviour and then becomes harmful to learning. I found that students adopt different approaches to competitive games which I labelled Competitive or Opportunist, Learning, Skill Specific, Rhino (Really Here In Name Only) and Confused. Their approach depends upon their prior experience, age, maturity, expectations and the quality of the tutor involvement. These different approaches lead in turn to different types of decisions, behaviour and eventually, learning.

I also found that tutors need to be deeply involved during the whole game in order to guide students away from over-competitive behaviour and decisions, and towards a more rational and learning orientated approach. In addition tutors need to devote considerable time and effort at the end of the game to resolving conflicts and misunderstandings.

In order that my study should prove useful to practitioners I have designed models of student approaches to games and simulations as well as a model of a business game. In addition I have drawn up, on the basis of my findings, a list of suggested guidelines for tutors who use (or are thinking of using) games and simulations. I hope they will indeed prove to be beneficial to both tutors and students.
ACKNOWLEDGEMENTS

First and foremost I would like to thank Professor Lewis Elton, my supervisor, for his unfailing encouragement and enthusiasm as well as his prompt advice and constructive criticism.

I am also indebted to my colleagues in the Institute for Educational Development for their support, valuable advice and criticisms especially Beryl Allen, Dr Pam Denicolo and Gary Lafferty.

Thanks are due also to the tutors and students who were involved in my research. To my husband who arranged for me to observe a game and who spent many hours rearranging my files on the word processor. To my children, who helped me to keep a sense of proportion throughout.

Finally many thanks must go to my father and Dr Christine Rutty for proof reading the whole thesis.
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1.1 Initial Research Interests

I came to this research having used games and simulations (for a definition of terms see appendix 1) in my teaching of Economics. Whilst generally believing games and simulations to be an effective teaching method I did have some reservations. I had observed certain pupils who did not respond to this form of teaching and others who became too competitive in their approach to the detriment of their learning.

My literature search into games and simulations revealed only four articles upon the effects of competition on learning (McKenney and Dill 1966, Farran 1968, Ravensdale 1978, Evans and Sculli 1984). Instead research into games and simulations has concentrated on what people learn from them (which, as my review shows is largely inconclusive) and how they enjoy it. I was much more interested in how students learned, (and I was particularly concerned with cognitive learning) their experiences of these events, the sense they made of them, and how the competition in some games influenced these four areas. Shortly before embarking on my pilot study I formulated my first set of research questions which were:

a. What influences students and teachers to perceive games and simulations in the way they do?

b. How do such perceptions influence their approach to games and simulations?

c. What are they trying to achieve? Teachers, students and game designers may all have different aims and objectives concerning the same game.

d. What do students think is required of them?

e. How does this affect their learning?

1.2 Pilot Study

I undertook a pilot study in a boys comprehensive school with sixth form 'A' level Economics students. This was intended as a practice run for my research techniques as well as an attempt to explore the areas covered by my research questions.
It did not quite go according to plan. The teacher played the game with the students the day before "so that I would not have to sit around while he explained it all to them". Thus I missed the introduction, the students were forewarned that I was coming and had also assumed that I had designed the game.

1.21 Pilot study findings

A. Competition

The students were very competitive and mostly treated the whole session as a game and a pleasant change from the "come in, sit down, take notes"(BS5i) approach (Note: the code is explained at the end of Chapter 3.) The quotations below illustrate their perceptions of the competitive aspect of the game.

"The day before I won and I was really looking forward to it." BS1i

"We're not asleep in class because of the competitive element" but "You lose context it becomes a competition" and we "took a few gambles, they didn't pay off." BS3i

However winning or losing is "good for discussion" and if it was not competitive it would be "not so enjoyable, people wouldn't think about it so much." BS5i

B. Strategy

For the most part their strategy was based upon guesses and gambles. The majority believed that winning depended mainly upon luck and did not relate their decisions to real life or economic theories. One said "The game mostly relied on guesswork, and my results show good guesswork" (BS8q) another said the game was "more of a lottery".

Several students tried to utilise the knowledge they had gained the previous day and/or considered the results of earlier decisions. Some considered what the others might be
doing and admitted having changed their decisions to copy the more successful teams. None of the students considered real life or economic theories, though one student said that his strategy was guided by common sense, the teacher's guidelines and the last set of results.

C. Learning

They were not able to express their learning very clearly but the majority felt the game had covered aspects of supply and demand, fixed costs, and the effects of price and advertising. However most of the students felt that because they had already learnt about these things this was merely revision or another way of explaining the various concepts. They did think it would help them remember these areas better and that it was easier to understand when tackled this way. They were a little concerned that because it was simpler than real life, misconceptions could occur, i.e. that the successful price and advertising mix in the game would always work in real life. In addition, they felt there was a danger of completely misinterpreting the results and thus they could leave the game with the wrong ideas. They also believed that the game did not teach them enough detail.

Finally, it emerged that because the teacher had suggested that winning and losing the game depended upon luck rather than skill, several students felt the game was consequently not 'true to life' and thus was in their view a less valuable learning experience.

D. Feelings

They all thoroughly enjoyed the game with the exception of one of the students in the losing team. He became very agitated during the debriefing and dominated the proceedings. He could not understand how he had lost and demanded to see the scoring system. Eventually the teacher became angry himself and resorted to sarcasm to quieten the student.

E. My conclusions
This study revealed that the students enjoyed the competitive element of the economics game but this appeared to be more important than the actual content of the game. Specifically, they played the game to win, not to learn. In addition contrary to my expectations the student who lost, and felt upset about it, appeared to learn more from the experience than the winners. He (the loser) went home and thought about the game and where he had gone wrong. The next day when I interviewed him he showed a much greater understanding of the effects and interaction of the variables. He understood what mistakes he had made and what he should have done instead. The winners on the other hand had merely gone home congratulating themselves and had thought very little more about it. Consequently they understood very little about the underlying principles of the game, having largely hit on the correct formulae (by their own admission) by luck or intuition.

I was also struck by the frequency with which the students claimed the game was 'not true to life' because a) it was too simplified b) they thought winning was based upon luck.

Thus the results from this study alerted me to several areas on which to focus and hypotheses to test:

1. competition is harmful to learning
2. losers may learn more than winners
3. the credibility of, and possibly learning from, the game depends on how accurately, in the perception of the students, it mirrors reality.

In retrospect I can now see that I missed two vital areas which I fortunately picked up at the next game. The first relates to their almost universally competitive approach to the game which led them to gamble and make risky decisions, changing their strategy if their results were poor. Their inability to communicate what they had learned and their belief that the game depended on luck, no doubt stems from the
fact that they failed to understand the underlying principles of the game. The debriefing was not very illuminating partly because of the argumentative loser, and partly because the teacher had to defend the scoring system. This defence of a table of numbers did not clarify why a certain product price or advertising expenditure would produce a certain result, only that it did, because it was in the table. Thus there was no explanation of how the variables interacted.

The second was the vital role of the game administrator in guiding the students into, through and out of the game. I missed the introduction to the game (it was played the day before) so I do not know whether the teacher related it to their coursework or to real life. During the game he answered students queries but only as a rule interpreter and only when asked. The debriefing was rather short and the only reference he made to the similarities between real life and the game was that they both depend on luck for success. He did not explain how the variables interacted and what steps it would be necessary to take in order to have a successful strategy. Neither did he give the individual teams an opportunity to explain what decisions they had made and why, nor did he relate the game directly to their coursework. This lack of direction from the teacher and the novelty of the game no doubt contributed to their generally competitive approach and led them to play the game merely as a game.

1.3 In Parallel

During the time I spent formulating my research questions and conducting the pilot study I also conducted my literature survey on the uses of games and simulations, the research studies into their effectiveness, the effects of competition in games and simulations and the methodological debate in the area. The next chapter contains my review of this literature.
## Chapter 2

### Literature Survey

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2.0 Introduction

This literature survey is divided into 4 parts
1. The claims made about the educational uses and effectiveness of games and simulations
2. The evidence for such claims
3. The methodological debate in games and simulations
4. The literature about the effects of competition in games and simulations.

2.1. The claims

2.11 Social structure of the classroom

During most games and simulations the atmosphere is much less formal than a traditional lesson (Roberts 1975). The relaxed atmosphere may encourage greater pupil/teacher interaction resulting in more positive relationships developing between all the participants (Abt 1970). It may also result in a two way exchange of ideas i.e. pupils knowledge can be discussed and recognised as valuable instead of the more usual 'public transmission of knowledge' emitting from the teacher (Barnes 1976). This greater freedom to explore ideas may encourage the pupils to learn from each other in a co-operative way especially if the teacher assumes the role of facilitator - explaining rules, interpreting results, resolving ambiguities etc. rather than that of judge and jury (Dudley 1980). In addition the democratic atmosphere may result in more efficient and rational problem solving by the group (Thelen 1972).

2.12 Motivation

Games are fun! Compared to traditional teaching methods, they can be more involving and interesting, they provide opportunities for joking and playing around and they avoid the boredom of note taking.

"The element of competition makes them exciting. They present the challenge of confronting difficult or
confusing or risky situations. They offer the satisfaction of receiving a good score and the opportunity to improve a poor score at the next attempt." (Livingston and Stoll 1973:7)

Hopefully the increased motivation generated by the games results in more interest in the topics covered and possibly in later course work. (Feldt 1966).

2.13 Learning atmosphere

Games provide an opportunity for the students to interact with material and to see the consequences of their decisions and actions, in this way the learning atmosphere may become more meaningful. Pupils may also gain a better understanding of how the facts, concepts, ideas etc. in the game link with the concepts they have encountered so far and their possible implications for future course work (Boydell 1976). Simulation and gaming situations have been likened to a laboratory environment:

"An environment in which experiments can be made, hypotheses formulated and new and better experiments planned" (Abt 1970.28)

Games and simulations are also a way of providing students with an opportunity to experience phenomena first hand eg. a job interview situation, without incurring the normal risks, costs, efforts and consequences of real life (Livingston and Stoll 1973). These first hand experiences may 'trigger off' better discussion and more pertinent questions in later class work as the class will have shared experiences and knowledge to draw upon (Greenblat 1973).

2.14 Skills gained

Participating in games may result in individuals becoming more willing to communicate, not only because they have an experience, role or question to articulate but also because their speech making capabilities may have been developed eg.
during role play (Livingston and Stoll 1973). Pupils may understand and develop skills of strategic planning, divergent thinking, resource allocation, flexibility and co-operation during, for instance, an economics simulation (Rockler 1979).

Practicing their skills should, in turn, lead to increased self awareness and perhaps greater autonomy. If the gaming experiences are fruitful this should also lead to more self confidence.

"Simulation/gaming can increase human potential. The process contains elements that can improve problem-solving, creative behaviour, socialisation, value clarification and preparation for life in the future. Playing games adds to people's opportunities for growth" (Rockler 1979.63).

2.15 Knowledge gained

One of the most useful functions of certain games and simulations is to demonstrate to students how systems work, how parts of a whole interact (Bredemeier, Greenblat 1981). This is especially useful for revision purposes - when concepts and ideas have already been encountered but perhaps have not been fully understood or seen in perspective. It may also be a fruitful way of introducing a new topic - by providing a simplified overview, to refer back to, or even just to whet students appetites. Additionally, it has been suggested that because knowledge is becoming increasingly more specialised we should use simulations to gain a broad overview in order to keep abreast of developments (Bredemeier, Greenblat 1981).

Pupils may be simultaneously gaining factual knowledge as well as experiencing such concepts as power and negotiation which will hopefully take on concrete meanings (Livingston and Stoll 1973). The rules and procedures during the game should convey the general principles and structure of the phenomena under study or alternatively, students may be required to 'discover' the underlying structure and the available options for
themselves by acting as problem solvers (Snelbecker 1974).

Participating in games and simulations may result in an attitude change or increased empathy as the individual is presented with new information, a new perspective or an opportunity to appreciate another's point of view (Bredemeier, Greenblat 1981).

2.16 Revision

This area may benefit significantly from the use of games and simulations which may not only provide a means of linking course concepts and establishing a forum for learning blocks to be removed, but they can also help to reduce the anxiety and sense of isolation often felt by students at this time (Hearn 1980). Another vital function may be performed during these sessions - that of helping the students to concentrate on the important and relevant content of their studies (Bell 1982).

2.2 The Evidence

It is only over the last two decades that games and simulations have become relatively popular as teaching and learning methods. As their use has grown more widespread so has the research into their effectiveness (Boocock 1968, Livingston 1971,1972, Remus 1977,1981 to mention a few). However I would argue that much of the research itself is of limited value, given that it provides largely contradictory results when attempting to measure how much people learn from games compared with traditional methods. A perusal of the literature shows that for approximately every 3 studies extolling the benefits of games and simulations, there is at least one refuting the findings or claiming there is no significant difference (see Cherryholmes 1966, Raia 1966, Pierfy 1977, Williams 1980, Bredemeier and Greenblat 1981 for a review of the findings from research into games and simulations).

Game administrators must be confused by this mass of
conflicting evidence. They are obviously not affected too gravely by it because games and simulations are being used in increasing numbers. Is this because they know something that has eluded the researchers? Could it be because the researchers are so busy looking in one direction ie. testing the amount of factual material learned from games and simulations (compared with traditional methods) that they cannot see the other benefits of them?

There is considerable unhappiness about much of the research on the evaluation of games and simulations. For example:

"Papers on evaluation in relation to simulation and gaming have been more successful at identifying problems than solutions" (Megarry 1977.11).

Taylor and Walford felt that research findings concerning learning were;

"fragmented and based more on hunch and general impression than on systematic, validated research". (Taylor and Walford 1978.32)

Greenblat laments;
"it is difficult to tell at this point whether the lack of evidence ...stems from poor outcomes or poor measurements".(1981.152)

She adds we must;
"continue our investigations to attain a greater understanding of how and why games have these effects"(1981.153).

2.3 The Methodological Debate

What is needed is to conduct research in such a way as to provide useful insights into the effectiveness of games and simulations ie. how and why they are effective. Arguably this requires different methods than those most frequently used in games research. Megarry (1978) calls for evaluation methods
games research. Megarry (1978) calls for evaluation methods which are more suited to a technique which does not fit readily into classical objective-orientated research methods. Barnett argues;

"To view evaluation through the traditional scientific, input/output research paradigm alone presents dangers. The multiple and complex nature of inputs, the difficulty of detecting and measuring outputs, the essential impracticality of isolating outputs, the considerable and intrinsic interaction amongst participants, all pose problems. Thus, whilst objective orientated evaluation under objective-specific conditions may be of value in easing certain evaluatory difficulties, it is unlikely to be conclusive and will not in itself provide a definitive evaluation of the usefulness or effectiveness of simulations and games per se (Barnett 1984.170).

He then adds that it may be that unexpected benefits from games and simulations are missed by objective oriented research. Also that the type of learning that arises from games is probably not best detected from traditional evaluation techniques:

"A danger of the classical paradigm is a proclivity to concentrate evaluation on types of learning which may not be fundamentally compatible with the nature of the technique, simply because such factors lend themselves to evaluation" (Barnett 1984.171).

Shirts felt that
"For one thing, it appears that the design of most of the research has been guided more by what is convenient, tidy and available than by an honest attempt to determine the impact of the use of simulations. For what other reason would a person compare simulations with traditional didactic methods on their effectiveness in teaching students numerous facts and ideas as measured by an objective test?" (Shirts 1970.82)
This was echoed by Megarry (1978, 1979) and Taylor and Walford (1978). Barnett concludes on a warning note that although there is a need for illuminative evaluation techniques to be used in this area, caution is needed because of the;

"danger of superficiality inherent in an anthropological approach" (he references Stenhouse 1975).

Thus he recommends that both interpretive and objective - orientated research should be undertaken to 'help distil the essence of this multi-faceted form of teaching'.

He is not alone in advising a middle path. Ellington recommends that teachers who evaluate their exercises would be wise to:

"try to adopt a middle path between the purely objective and purely subjective approaches (ie. 'scientific' and social/anthropological approaches) .....Whether the emphasis should tend towards the former or the latter will depend on the nature of the exercise in question and the specific educational purpose for which it is to be used." (Ellington 1981.116) 

(my addition in brackets)

Greenblat (1981) echoes similar thoughts, she says the issue is not simply a methodological problem. There are two problems, one is what to measure, the other is how to measure it. Do we measure process ie. how people learn from games and simulations, or product - what or how much people learn from games and simulations? Then, having decided that, we need to decide how to study it.

2.4. A review of the literature on the effects of competition

Throughout my three years research I have continued to search for literature about research into the effects of competition on learning in games and simulations. I have found only four items (McKenney and Dill 1966, Farran 1968, Ravensdale 1978, Evans and Sculli 1984). I describe below their findings
relating to both competition and other aspects relevant to this thesis.

A. McKenney and Dill 1966
The study involved 650 graduate students of business administration. The research was primarily investigating the various influences on learning in simulation games. They were interested in 4 areas;

a. The 'attitude' that students adopted at the beginning of the game ie. they asked students to write down what they intended to learn before they began to play.

b. The appropriate role of tutors in games and simulations, thus in this research tutors served as advisors (board members to teams) but different tutors stressed different objectives

   i. in some groups profits were stressed.
   ii. in some groups experimentation in group organisation for decision making was stressed.
   iii. in some groups activities to maximise learning were stressed.

c. They compared experienced teams which had already worked together on other projects with newly formed teams.

d. They also had some groups that were homogeneous in ability or past scholastic performance ie. some groups contained above average, average and below average members and others were mixed.

Unfortunately, as so often happens, their results were disappointing:

a. "students lists of things to be learned were not particularly rich or specific. They did not read as if they reflected much prior thought or personal commitment"(p.29)
However they add that subsequent experiments suggest:

"Pre game discussion and analysis of what players hope to learn can be valuable, but that the effort must go beyond simply writing agenda. Ways must be found to review the agenda against the opportunities that the game will provide and to refer back to the agenda as play progresses" (p.29)

b. The tutors' different 'messages' were received differently by different students.

i. The profit message was most consistently received

ii. The experimental message was only communicated effectively by one (out of 7) tutors.

iii. The emphasis on future learning was communicated with reasonable consistency.

They add that it was not clear from the data whether the failure was due to the tutors' inability to assume a role or the unreceptiveness of the students.

c. There was no significant difference between experienced and newly formed groups in either satisfaction or performance.

d. Not suprisingly the above average groups performed better than the other groups. However it appears they also learned more. McKenney and Dill believe this is because they used their knowledge to better effect.

"In the initial stages any simulation game poses mainly an intellectual task, to learn the rules and to discriminate among masses of information, and an organisational task, to accommodate others and to develop a decision-making style. The above average students were able to learn faster than their classmates and this capacity made them more confident, more satisfied and less anxious from the start of the game. The below average groups seemed to be overwhelmed by the task. Few had leadership capability within the group to show the
way through early problem situations. Early dissatisfaction with poor results led in turn to reduced effort, either in trying to learn the simulation or to cope with the problems that the competitive situation posed. The end result was both poor performance and low satisfaction." (p.31)

They add "the measures of learning were crude, but the differences do suggest that high satisfaction and high sense of learning from the simulation experience do go together." (p.31)

Their comments on the effects of competition are to be found in the conclusion, where they write:

"What we have been learning in general - and what this study was particularly designed to confirm - is that simulation experiences in themselves are not enough. In fact, some of the very things that make such experiences engrossing and exciting may diminish their educational effectiveness. The competitive aspects of a management game, for example do arouse motivation and help sustain effort. But they may also detract from long term learning by leading students to play conservative strategies instead of experimenting with new approaches, to emphasise short term profits within the game context at the expense of building and trying to achieve long term strategic plans, and to let anxieties about relative performance and grades interfere with efforts to learn" (p.32).

Thus they found competition (though helpful to motivation) to be harmful to learning because students wanted to win, did not therefore experiment and made short term, profit maximising, decisions.

B. Farran 1968

Farran describes research conducted with boys who are 'underachievers' at school and who have been prescribed a
course at the North Carolina Advancement School. The aim of this school is to resolve the boys learning problems so that they can return to their normal schools and studies. He is therefore interested in methods which make studying more interesting, involving, fun etc. and has thus incorporated three games into his programme.

Farren presumes that competition in games is of considerable importance to students' learning. He arrives at this presumption by linking it to sport:

"a student's achievement in athletics contributes to the prestige of his group (his school) and is hence rewarded with status". (p.192)

He argues that this is not the case with academic studies ie. no intergroup competition and therefore no status to be awarded or gained from doing well academically. (Remember he wants the underachievers to see learning as desirable). Thus he poses the hypotheses that:

a. intergroup competition in intellectual achievements should raise the importance of these in the social climate of the schools.

b. As actual effort and achievement has been found to be contingent on this social climate, the students should learn more in a competitive situation.

c. Individual ie. intragroup competition should have no such effect.

Farren divided 123 boys into 8 groups, 4 played games competing between groups and 4 played games competing individually.

Once again the results did not confirm his hypotheses. The students who competed individually scored higher and learned more than those who competed between groups. Farren then
tries to explain his results by suggesting that the hypothesis does not apply to the type of learning studied i.e. learning in games. Whilst explaining this further he eventually manages to reach a conclusion that should have been obvious before he started i.e. 'with individual competition success in the game gave status directly and immediately' (p.195). That is, students were more highly motivated to do well for themselves than they were for the team. Individual success (especially for adolescent boys) often carries more prestige than a team victory. I would argue that this is also true for sports, most people are competing for themselves not for a school, team or country, and prestige and status is awarded firstly to the individual victor and then to the institution he is representing.

However for this thesis the relevant finding from Farran's research is that those students involved in individual competition learned more than those involved in intergroup competition. This is most interesting because during this study I have not observed any games where students compete as individuals, only as teams. I would therefore recommend further research to be conducted in this area (see Chapter 11).

C. Ravensdale 1978

This article is not based on any specific research but it's purpose is to question the usefulness of highly competitive gaming. He makes several thought provoking points:

a. He draws attention to the fact that much of the research into games and simulations equates high motivation/satisfaction with high learning. He then points out that often only the former is measured and the latter is assumed to follow as a matter of course. Ravensdale does not assume this to be necessarily true and he quotes Twelker who also questions this:

"It might be that excessive student involvement may actually lead to a decrement in cognitive outcome"
b. When students do improve their skills under gaming methods does this mean that they have learned the subject better - or that they have learned to play the game better? In other words have they just learned a winning strategy or do they understand the underlying principles of the game?

c. Must winning be the major criterion for gaming? And if so, what of those students who find competition anathema? Do we learn more by competing, and if so, what of the losers? He quotes from others' observations:

"competition can very often lead to disappointment and loss of dignity" (Tansey and Unwin 1969).

"It has been observed repeatedly in classroom simulation training that some individuals become so involved in the simulation that they break down and weep, or become extremely frustrated, and even, on occasion simply refuse to respond" (Twelker 1971.160-161)

Ravensdale argues that:
"competitive gaming usually emphasises, and is very often contingent upon, the failures and inadequacies of some whilst placing the successful above others in a far more conspicuous way" (1978.103)

HE cites McKenney and Dill (1966), Abt (1968), Farran (1968) in his defence.

d. How does losing affect students learning? He quotes Skager (1957) to illustrate his belief that it is harmful to learning

"many years ago psychologists began to observe in studies of animals that punishment, or negative reinforcement, was not nearly so effective a mechanism for maintaining and promoting certain types of learning as was reward or positive reinforcement." (1978.104)
He adds this has been long since confirmed for human performance and adds:

"few teachers would point an accusing finger at the underachiever quite so blatantly as some games do unavoidably and even intentionally."(p.104).

He concludes that we must be careful before introducing any new means of teaching and first and foremost, we must evaluate the risks.

D. Evans and Sculli 1984

This study was an attempt to evaluate business games on a scale (Ghiselli's self-description inventory) related to managerial talent. The research involved 158 practising managers who played business games that ran over several months. Three game competition or groups were surveyed as follows:

Group A (n=41): played a relatively complex game with a high level of competitiveness.

Group B (n=35): played a relatively complex game (similar to group A) but there was a low level of competitiveness.

Group C (n=82): played a simple game with a low level of competitiveness.

Their results suggest that games may not be as useful in developing managerial talent as they are in teaching basic business principles and quantitative decision making skills. In addition they found that the complexity of the game does not have a significant effect on its effectiveness ie. a less complex game was just as successful for learning as a complex game. Finally they found that:

"...groups B and C, conducted in a non-competitive atmosphere, scored consistently higher than participants in Group A who played a competitive game".(p.11)
However in game A
"Teams were in direct competition with each other and winning the game appeared to be the major objective. The competitive atmosphere appeared to make participants dissatisfied and very ambitious. They would often make unorthodox decisions in a do-or-die attempt to win" (p.11)

They add that
"Groups B and C participated in the game in a much less competitive atmosphere. There was no direct inter-team contact; the decisions were made at the various subsidiary companies and co-ordinated centrally. Team names and membership were deliberately kept secret. This created a more relaxed and satisfying atmosphere for the participants". (p.11)

Thus they conclude:
"The degree of competition in the game influences the game's effectiveness; a highly competitive environment detracts from the game's value as a teaching aid". (p.10)

They also agree with Mckenney and Dill (1966) that competition in a game may detract from long term learning stating:

"...that competition does arouse motivation and sustain effort but it also encourages emphasis on short term profits within the game context at the expense of building and trying to achieve long term strategies and plans". (p.12)

2.5 Conclusions

In this chapter I have discussed the many and varied claims made about the educational effectiveness of games and simulations and briefly disputed the validity of some of these claims. I have outlined the methodological debate which is taking place in the gaming world. Finally I described the literature which relates specifically to this thesis on the
effects of competition in games and simulations.

My own experiences of using games and simulations and my pilot study awakened me to the potential effects of competition on learning. The literature survey confirmed that I was not the only person to have observed these effects i.e. playing to win, short term strategies, risky decisions, frustration and apathy when losing. I wanted to produce findings which would be relevant and useful to practitioners. I decided that this could best be achieved by discovering why competition might interfere with learning. To do this it would be necessary to study the whole process of learning from games and simulations i.e. from introduction to debriefing. I did not want to risk overlooking any important but unexpected variables, therefore I believed that qualitative methods would serve my purpose to greater effect. The following chapter describes which methods I chose and why I felt they were particularly suitable.
# Chapter 3

The Research Problem, Approach, Methods

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3.1 Introduction

The previous chapter described the research to date and its findings on games and simulations. I also argued that the methodologies used were designed to find out what students learned from games and simulations, but did not contribute a great deal to our understanding of how students learn in, and from, games and simulations. In this chapter I propose to discuss the problem as I see it, an alternative approach to conducting research into this area, my reasons for adopting it, and the methodologies I will use.

3.2 The nature of the research problem

I was interested in finding out not what or how much students learned from games and simulations but how they learned, their experiences of these events and the sense they made of them, particularly when these games and simulations were competitive. In order to do this I began by considering the following five questions:

a. What influences students/tutors in their perceptions of games and simulations?
b. How do such perceptions influence their approach to these sessions?
c. What are they trying to achieve? Tutors/students and game designers may all have different aims and objectives concerning the same game.
d. What do they think is required of them?
e. How does this affect their learning?

3.3 The philosophy of the methodological approach

I believed that in order to gain a greater understanding of people's perceptions and concepts it would be more fruitful to attempt to answer these questions using a naturalistic approach. For instance using such methods as observation, interviews and semi-structured questionnaires, instead of the traditional quantitative methods commonly used in researching into games and simulations, for instance pre-test and
post-test and closed questionnaires. The main reason for this belief is that the phenomena in question are parts of a complex whole and therefore are arguably best studied as such and in context. Most of the research on games and simulations so far has unfortunately taken a different approach, breaking down the whole into 'manageable' parts i.e. easily quantifiable parts. Thus most research and literature in the area addresses one issue at a time eg. the educational effectiveness of games and simulations for conceptual learning (Boocock 1963, 1967) or attitude change (Baker 1968, Williams 1980) and these are then often reported completely out of context. This makes it extremely difficult if not impossible to see the inter-relationship between the parts or to relate the findings to 'real life'. It may be better to take a holistic approach to the problem as Rist (1977) explains:

"From their perspective (qualitative methodologists), it is precisely because reality cannot be broken down into component parts without the severe risk of distortion that a holistic analysis is necessary. Focusing on a narrow set of variables necessarily sets up a filtering screen between the researcher and the phenomena he is attempting to comprehend. Such barriers, from the vantage point of those employing a holistic analysis, inhibit and thwart the observer from a necessary closeness to the data, from an understanding of what is unique as well as what is generalisable from the data, and from perceiving the processes involved in contrast to simply the outcomes". (Rist.1977.47)

I was trying to adopt a contextual view of reality and research rather than a compositional one (Tornebohm 1976). That is I saw the object of my inquiry as being determined by, and gaining its meaning from the whole of which it is part rather than using a quantitative methods framework where clearly discernable parts or elements are studied without reference to the larger complex to which these elements belong.

Conducting research using the latter kinds of methods may be
more suitable for certain phenomena, particularly in the natural sciences but they are not necessarily the most advantageous for studying social phenomena. Saljo (1982) explains:

"Problems arise, however, when there is disagreement between demands and presuppositions emanating from methodological considerations and those arising from our conceptions of the nature of the phenomenon that we are interested in. What is at stake is our sensitivity or fidelity, as the phenomenologist would have it, to phenomena as they exist and are experienced by human beings". (Saljo 1982.19)

In order to remain faithful to the events and to increase my understanding I wanted the subjects to state their points of view in their own words rather than to have them forced and/or distorted through a predetermined experimental framework. My views at this point were akin to the sociological perspectives of Symbolic Interactionism:

"... symbolic interactionists stress the importance of the perceptions, world views, subjective intentions and the cognitive plans of social actors. The active individual is the starting point for Symbolic Interactionism and it is the individuals' perspective which will have to be analysed if research wants to understand and explain his actions". (Terhart 1982.145)

The Symbolic Interactionists believe that man can act spontaneously and is guided by his subjective intentions. This leads Terhart (1982) to state:

"These basic claims about human action lead to methodological consequences; if people do act according to the meaning things and persons have for them, it is necessary to see the world through the eyes of the actor - if (and this is important to notice) we want to reach a full understanding of his actions". (Terhart 1982.145)
Thus I was trying to gain an inner perspective of the behaviour of the individuals, something I felt could only be gained by a naturalistic approach as Rist (1977) explains:

"It is from an interpretation of the world through the perspective of the subjects that reality, meaning and behaviour are analysed. The canons and precepts of the scientific method are seen to be insufficient; what are needed are inter subjective understandings" (Rist 1977.44)

Thus in order to understand the subjects' views, perceptions and experience of games and simulations I wanted to try to see these events through their eyes. In order to do this I proposed to observe and listen to what they said and did and to talk to them to try to find out what they actually thought about the sessions. I hoped that by using observations, semi-structured interviews and open-ended questionnaires I would collect sufficient data to enable me to not only 'see the world through their eyes' but also through analysis of the data to generate hypotheses, concepts or theories (cf Glaser & Strauss 1967) which may enhance understanding of how people learn through games and simulations.

I believed that in order to discover theories that would be useful to academics and laymen alike it was necessary to ground the theory in reality. It seemed logical to suppose that a theory generated from 'real' data would be relevant and useful to practitioners of games and simulations. Glaser and Strauss (1967) put it succinctly in this extract;

"Thus one canon for judging the usefulness of a theory is how it was generated - and we suggest that it is likely to be a better theory to the degree that it has been inductively developed from social research. We also believe that other canons for assessing a theory, such as logical consistency, clarity, parsimony, density, scope, integration, as well as its fit and its ability to work, are also significantly dependent on how the theory was generated" (Glaser & Strauss 1967.5)
I proposed to systematically analyse all aspects of the phenomena in order to identify and understand relationships and other consequential factors (see section 3.55i for a description of my methods of analysis) and then hopefully advance a theory (or theories) which may contribute to our knowledge about learning through games and simulations. I did not want to begin my research with a set of hypotheses which I would then attempt to prove or disprove. My approach to research was very similar to that of an ethnographer:

"Ethnographers attempt to describe systematically the characteristics of variables and phenomena, to generate and refine conceptual categories, to discover and validate associations among phenomena, or to compare constructs and postulates generated from phenomena in one setting with comparable phenomena in another setting. Hypotheses, or causal propositions fitting the data and constructs generated, then may be developed and confirmed. Ethnographers commonly avoid assuming a priori constructs or relationships" (Le Compte & Goetz. 1982.33)

To sum up briefly my aims of research were:

a. To understand how people learned from games and simulations, especially competitive games.
b. To gain a greater awareness of the variables and relationships that influence learning in games and simulations.
c. To generate hypotheses, concepts and theories about games and simulations which would be useful to practitioners.

3.4 Cautionary note

I was not unaware that qualitative methods have both problems and critics;

"the followers of systematic observation and controlled
experimentation argue that interpretative methods suffer from several methodological weaknesses which - on the whole - lead to the consequence that their results are not valid, cannot be generalised, cannot be controlled by other scientists, are only a refined form of journalism or just story telling" (Terhart 1982.152)

"The insights which emerge from qualitative research reports can appear too much the product of the researcher's personal perspective and of the idiosyncracies of the specific situations examined.....But good qualitative research can through cross-checking of interpretations and through awareness of its limitations, provide evidence as strong in its own way as that derived from conventional approaches" (Entwistle and Hounsell 1979.361)

Critics, eg. Magoon 1977, Cook and Reichardt 1979, claim that qualitative investigation fails to adhere to canons of reliability and validity.

In answer to these problems and criticisms qualitative researchers recommend numerous actions. These recommendations usually take the form of a paper (eg.Kushner and Norris 1980, Eisner 1981, Le Compte and Goetz 1982, Guba and Lincoln 1982) which defines, redefines or renames the criteria that traditional 'scientific' research needs to satisfy ie. reliability, validity, objectivity in a more palatable form for qualitative research. Others (eg.McDonald 1977, Elliot 1980) argue that qualitative researchers should cease to defend themselves and their research according to the canons of scientific method and an alternative set of criteria should be followed.

Having scrutinised vast amounts of literature on the subject, the criteria I attempted to satisfy in this research study were reliability and validity as described below.

A. Reliability
whether independent researchers would discover the same phenomena or generate the same constructs in the same or similar settings"

**B. Validity**

i, "Internal validity refers to the extent to which scientific observations and measurements are authentic representations of some reality.

ii, External validity addresses the degree to which such representations may be compared legitimately across groups", ie. can the findings be translated or generalised to other similar groups and settings? (Le Compte and Goetz 1982.32)

I will outline the steps that I took in order to ensure the reliability and validity of my study.

**A. Reliability**

It can be argued that events "cannot be replicated exactly because the event cannot be reproduced" (Le Compte and Goetz 1982.35) ie. the students, researcher and tutor may all be different, act differently and see the world differently thus different results are highly probable. However, in order that researchers can attempt to 'replicate' my studies I have tried to describe systematically my research methods, data analysis and findings, the events that occurred and the characteristics of the students and tutors (without prejudicing their confidences). In addition this description should allow comparisons and similarities to be drawn between other studies or groups. I will list below the areas I addressed in describing my research.

i, Researcher status position - I explained how I became involved in the particular game and how I was introduced to the students. I also describe my involvement with tutors and students and how trusting/friendly the students were towards me.

ii, Informant choices - ie. who I gained information from and
whether it may have been biased. I sat with groups chosen at random in all games except BT where I was invited to join a group. Thus most students did not seek me out to part with information, when they did I have reported this. The interviewees and questionnaire respondents were volunteers, their replies do not seem skewed in any direction (eg. more dissatisfied than satisfied respondents) when taken as a whole, only in individual games (this, I would argue, is a function of the game not a reflection of the type of student who replies).

iii, Social situations and conditions ie. students may reveal different things at different times and depending on who is within earshot. Once again I note in the Case studies whether the information was gathered from observation, interview, questionnaire or whether the student told me quietly in the bar, or over lunch.

iv, Analytic constructs and premises - ie. the definitions I use (eg. of a game) and the models I have designed of students approaches and a business game have been clearly identified to enable other researchers to use them in other studies.

v, Methods of data collection and analysis - later in this chapter I describe how I took observation notes (see 3.53i) and attempted to keep my impressions and assumptions separate from my observations. There is also a section on how I analysed the data collected (see 3.55i) In the Case studies I describe how I distributed questionnaires and in the appendices there are copies of all the questionnaires and some completed questionnaires (see appendix 3) to illustrate the types of replies I received.

vi, Agreement on my findings - my supervisor and several colleagues have analysed parts of my data (using the same methods that I did) and the amount of agreement was very high. However I feel that this endorsed my methods of analysis rather than my findings. To test the reactions towards my findings I presented a paper at the SAGSET 84 Conference which described my models of student approaches. It was well
received by a variety of practitioners who recognised that they had observed similar student approaches when using games and simulations.

B. Validity

i, Internal validity - to ensure that my data represented as accurate a picture as possible and to avoid observer and methodological bias I took the following measures.

a. Observer effects - I cannot claim not to have had any effect upon individuals but I did try to minimise any effects that may have occurred. For instance I tried to establish a good rapport with students so that they would not feel inhibited by my presence (I had to exercise care here, on two occasions I was the only female at the game). I was careful how I dressed ie. fairly informally for undergraduate games, more formally for 'management' games so that I fitted in with the subjects rather than the tutors. To avoid gaining information from only 'friendly' or 'co-operative' students I attempted to gather data from students that were not in my group and who did not seek me out to tell me their views. I tried not to interrupt or help the students when they were playing the games. I also tried not to register any emotions when I saw them making potentially disastrous mistakes.

Finally I attempted to suspend my interpretations of the events until after they had occurred. During observations I only noted what I saw and heard. The explanations were added later in the light of further data, reflection and analysis. In addition whilst analysing the data I tried to find categories and patterns that were within it and not imposed on it from any theories I may have formed.

b. Methodological effects - I used a variety of methods (triangulation see 3.51) so that any one method would not distort the data (Cohen and Manion 1980) and to allow me to cross check my findings.

ii, External validity - in order that my findings can be translated (generalised) to other similar groups and settings
I have described in detail the characteristics of the groups, the settings and the games. Trusting the view that:

"external validity depends on the identification and description of those characteristics of phenomena salient for comparison with other, similar types. Once the typicality of a phenomenon is established, bases for comparison may be assumed." (Le Compte and Goetz 1982.30)

3.5 Research Methods

3.51 Triangulation ie. The use of two or more methods of data collection in the study of some aspect of human behaviour.

I wanted to collect as full and accurate a picture of the games sessions and peoples' perceptions of them as possible. In order to do this I decided to use more than one method of collecting data. I was impressed by the views of Cohen and Manion (1980) that;

"Research methods may act as filters through which the environment is selectively experienced, they are never atheoretical or neutral in representing the world of experience" (Cohen and Manion 1980.208)

They therefore conclude that;

a, exclusive reliance on one method may bias or distort the data;
b, greater confidence can be achieved in the study if different methods produce similar results.

I therefore determined to use both within methods triangulation and between methods triangulation (Denzin 1970). Triangulation within methods concerns the replication of a study as a check on reliability and theory confirmation (I proposed to do this through several case studies). Triangulation between methods involves the use of more than one method in the pursuit of a given objective (I wanted to use at least 3 methods). Cohen and Manion (1980.214-216) list
several instances where the multiple method approach in educational settings is appropriate:

a. Triangular techniques are suitable when a more holist view of educational outcomes is sought.
b. Triangulation has special relevance where a complex phenomenon requires elucidation.
c. Triangulation is also appropriate when different methods of teaching are to be evaluated.
d. Multiple methods are suitable where a controversial aspect of education needs to be evaluated more fully.
e. Triangulation is useful when an established approach yields a limited and frequently distorted picture.

All five points are relevant to my research to a greater or lesser degree. I certainly wanted to gain a holist view of the area, games and simulations are complex, sometimes novel and whilst perhaps not controversial they are often emotive. Finally the research to date has led to a limited and perhaps distorted picture of games and simulations. Thus I felt triangulation of methods to be particularly suitable for my research.

3.52 Case Study

In order to check that my findings were reliable and worthy of generalisation I decided to conduct several case studies within different types of educational institutions with different kinds of students and games. I chose to use case study methods because I felt they would be the most useful in attempting to understand individuals perceptions of games and simulations – Rob Walker (1980) defines them as such;

"Case study is the examination of an instance in action. The study of particular incidents and events, and the selective collection of information on biography, personality, intentions and values, allows the case study worker to capture and portray those elements of a situation that give it meaning" (in Dockrell and Hamilton 1980.33)
Thus case study methods would help me to study the many elements that made up games and simulations, how people made sense of them and ultimately, I hoped, how this affected their learning.

I also hoped that by using case study methods my research would be seen to be relevant and useful by those people at whom I aimed my findings, namely practitioners of games and their students. Because my case studies describe in detail the many elements that make up games, in different settings and with different games, I felt that practitioners would find some common experiences among them which they could identify with and apply to their teaching. For more detail and further examples of the value of case studies see Louis Smith (in Dockrell and Hamilton 1980.41)

To summarise, I believed that case study methods would enable me to gain a deeper insight into students' views of games. They would provide an opportunity for verification and generation of theories and would in themselves be sufficiently grounded in reality for laymen to appreciate their relevance.

As I outlined earlier, the methods I proposed to use to conduct this research were observation, semi-structured interview and open-ended questionnaires. Next I propose to discuss why I chose them and how I used them.

3.53 Observation

I wanted to sit in on games sessions to observe what people said and did, and in addition, I wanted to tape record some games and take written notes (see Methodological Note 3.53i below) about the students' and tutors' behaviour. Games and simulations are not like a lecture or lesson where the tutor gives information and the students sit passively and (hopefully) receive it. In games sessions there is often noise, confusion, excitement and movement and it would have been, I believe, quite inappropriate to have remained seated in a corner, silently ticking off a check list (interaction analysis system) in such an atmosphere. Additionally it
probably would not have elicited the kind of information I was trying to acquire given that:

"Many of the systems assume the 'chalk and talk' paradigm and focus predominantly upon the teacher. (Flanders interaction analysis system has ten categories, seven devoted to 'teacher-talk' and two devoted to 'pupil-talk'. The tenth is a 'junk' category, 'silence or confusion'). They imply a classroom setting where the teacher stands out front and engages the students in some kind of pedagogical or linguistic ping-pong (teacher asks question/pupil replies/teacher asks question)." (Delamont and Hamilton 1976.10)

As can be imagined, a game or simulation is seldom if ever like that! Instead I sat in a convenient position taking notes, where I would not be in the way but where I would nevertheless be involved in the activities. I endeavoured to speak when spoken to, smile pleasantly, and to look equally interested in everything that went on - without offering advice to the students. Observing these sessions enabled me to gain an insight into the tutors' perceptions of the game or simulation - by the way they introduced, conducted and concluded them, which also indicated, to some degree, their competence at running such sessions.

These and other factors would help influence the students' perceptions of, and approach to, the game or simulation and again observation was a sensible method to gain a perspective of their reactions.

Another bonus from observation which is sometimes overlooked is that it gave the students an opportunity to observe me observing them and possibly to assess my approachability and trustworthiness. It was also a chance for me to establish some kind of rapport with the students - which helped greatly if I proposed to interview them after and sometimes ensured a better questionnaire response. Some of the advantages of observation are given by Bailey (1978) and are pertinent to my research;
a. Observation studies are superior to experiments and surveys when data are being collected on non-verbal behaviour.

b. In the observation study, the investigator is able to discern ongoing behaviour as it occurs and is able to make appropriate notes about its salient features.

c. A more intimate and informal relationship may develop between researcher and observed in this more natural environment than one in which traditional experiments and surveys are conducted.

d. Non-participant observations are less reactive than other types of data gathering methods. For example, in laboratory based experiments and in surveys that depend on verbal responses to structured questions, bias can be introduced in the very data that the researcher is attempting to study. (Bailey in Cohen and Manion 1980.103-104)

Accordingly I attempted to take observation notes and in order to have a double and more complete record I proposed to tape record the sessions. In this way I felt I had adequate coverage of an outsiders view of the phenomena I was studying ie. audio tape, written notes and my own insights, perceptions, views and personal memory of what took place.

3.53i Methodological Note

When taking notes I tried to only write down what I saw or heard the students and tutors doing during the game. Periodically I noted the time (approximately every 3-5 minutes) at which I was making the observation. Before the session began (or after it finished) I would make notes on the physical setting. I used the following guide from Walker and Adelman (1975) to direct me to the types of phenomena to observe and note.
a. Physical setting: Location, wear and tear of furniture, unexpected equipment, posters, temperature, etc.

b. The pupils: Number, sex, age, who arrives first, pattern of spacing, who sits at back, jokers, etc.

c. Teacher: When enters room (first, last, etc.), first gesture, how different inside classroom to outside, response to questions, use of analogies, pauses, etc.

d. Resources: What apparatus, material are available, what technical assistance is available, who has access to resources etc.

e. The Lesson: Designation on time-table, who teaches it, aim of lesson, how does it relate to a sequence or theme, etc.

After the game I added additional comments, details, ideas impressions, tentative theories etc. to the observation notes in a different colour. This was a deliberate policy, so that I would not confuse my observations with my interpretations.

3.54 Semi-Structured or Focused Interviews

I wanted to give the students an opportunity to state their perceptions of the phenomena in question in order to gain an insider's view. However I wanted to gradually focus on the more illuminating elements that arose from these views and felt that a semi-structured interview would allow this whilst still giving the students sufficient freedom to express themselves fully. It would also give me the chance to pursue interesting statements further, as well as seeking clarification of other more vague or difficult replies.

An important reason for using semi-structured rather than structured interviews is that it provides far richer data, which is more likely to be insightful, than responses to a structured interview. A structured interview which consists
of a set of questions devised to test a hypothesis is a tool that produces 'narrow' information which at worst may not add to our understanding and even prevent us from 'seeing' what really happens.

"The critical argument is that, in trying to perform educational research according to protocols of "strict" or "natural" science, the most central features of the research in question are systematically being missed. The methodological compulsion to quantification and standardisation neglects the interpretative and reflective character of human action and interaction or - in other words - it only makes visible those elements in interaction which are quantifiable" (Terhart 1982.144)

Thus if I was to fulfil my aim of gaining an insider's interpretation and reflections on the games and simulation sessions, in order that I may understand more fully how people learn in these situations, I felt that a semi-structured interview would serve its purpose well.

3.54i Methodological Note on Conducting Interviews

I had relatively few formal interviews (10) because most games that I attended were played on the last day of a residential course and involved students who wished to leave immediately the debriefing was completed. Therefore interviews were not possible. I tried to make up for this by talking informally to as many students as possible during coffee, lunch and dinner breaks.

When I was able to interview students formally I tape recorded the session and took notes, if I thought this would not affect the student adversely. I tried to put students at ease by asking firstly how they had enjoyed the game, this usually succeeded in eliciting an animated response containing several key areas which would allow me to direct more focussed questions about their strategies, expectations etc.

When talking informally with students I used the same tactics
asking them "How are you enjoying it?" or "How are you getting on?" and then focussing on other areas. I then had to find a time and place to note down what they had told me, which was fairly easy to do on residential courses but not so simple elsewhere.

3.55 Open ended questionnaires

The arguments employed for the suitability of semi-structured interviews hold largely true for open ended questionnaires. They provide an insight into the students' perceptions of the phenomena without restricting their answers too greatly and they avoid focussing on too narrow a set of variables which may limit the information received. In doing so they may provide a rich data base. In addition they give the students another opportunity to express their views and with greater anonymity. (It is probably easier for some people to write about their feelings rather than to discuss them with the interviewer). As well as possibly providing an extra dimension to the phenomena, they also give the researcher a way of cross checking and clarifying peoples' answers.

3.55i Methodological Note on Data Analysis

I wanted to consider my data as a whole, therefore for each game I would read through all the replies and listen to the interviews several times to get a general impression. I would then note any similarities or patterns that I believed were present throughout the replies. Quite early on it became obvious that the responses fell into five areas ie. Expectations/Learning, Strategy, Competition, Evaluation, Feelings. Thus for later games I always used these areas - but I still read them all through first to see if there were differences. I then read through each response and categorised each statement or paragraph as belonging to one of these five areas. Sometimes statements could not be categorised, these I put a query next to.

I would then compare the statements about each area within and between teams - to see if team-mates agreed on salient points,
(especially winning and losing teams) and to see if there were any obvious differences between winners and losers. This part was difficult because of the sheer amount of paper involved. I therefore decided I would be able to see patterns more clearly if I put the salient points on a chart and ticked them off when a student's statement fitted the category eg.

<table>
<thead>
<tr>
<th>LHu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team 6</td>
</tr>
</tbody>
</table>

| 12 16 17 2 7 6 |

Guided by real life etc. x x x
To win, guesswork
Own learning aims x
Problems of morale x
Bad results/changed strategy x x x
Losing affects learning x x

The chart was a great help when I was designing my models of a business game and student approaches because patterns could be seen graphically. I think it would have taken me longer to reach the same conclusions without it but I must stress that I used it as an aid to analysis not as a tool ie. it helped show patterns and relationships that were there, but because I had to 'place students in boxes' to use this aid I was reluctant to use it as a methodological tool for analysis in case the data was distorted at some point in the process. Having analysed the data in this way ie. reading through, looking for patterns, categorising statements, I was eventually able to design models of student approaches and of a business game.

3.6 Summary

Briefly this chapter has outlined:

a. My interest in finding out how people learn from games.

b. The philosophy of the methodological approach that I used in the study.

c. The precautions I took to safeguard the reliability and validity of the study.
d. The research methods I used in the study ie. triangulation, case study, observation, semi-structured or focused interviews and open ended questionnaires.
e. Details of how I took observation notes, conducted interviews and also how I analysed my data.
Guidelines

The next section of this thesis contains the case studies of six of the games that I attended. It may aid the reader if I explain the notations that I use to protect the identities of the institutions and the students concerned.

I refer to the case studies by two capital letters eg. BT to denote the game or the institution. If I attended the same game or institution more than once I use a lower case letter after the capitals eg. LUa (first attendance) and LUb (second attendance). The students are identified by a number and if the number is followed by a (q) it denotes that the quotation comes from a questionnaire response. Similarly, an (i) indicates it is a quotation from an interview. For example:

```
LUa. 5 q
```

institution  first  student  questionnaire
attendance  number  response
Chapter 4

Case Study LUa

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4.11 Outline of game
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   Résumé
4.0 Preamble

I embarked on this study bearing my original research questions in mind (see 1.1) and with three working hypotheses which had been formulated as a result of my pilot study findings.

- a. Competition is harmful to learning
- b. Losers may learn more than winners
- c. The game needs to mirror reality to be credible.

During this game I observed that competition was harmful to learning. Teams guessed and gambled in order to win and changed their strategies when results were poor. It was not clear from the game what the relationship between winning/losing/learning is (only that it is complex). I rejected my third hypothesis because it seemed that students faulted the game mainly because they had difficulty understanding it and not because it was a poor model of reality. Finally my observation of this game led me to add another hypothesis to my list ie. students need help throughout the game to facilitate learning.

4.1 Introduction: General background

I became involved in this game by writing to the head of department inquiring if any games and simulations were used by his department and if so whether the staff concerned would allow me to attend. He replied promptly, advising me to contact two lecturers (A and B) who both used games within the department. I subsequently telephoned both lecturers and was invited to send my research proposals to them and later to meet them to discuss their games (they had both designed a game and both games were used on the course) and my research over lunch. During the telephone conversation with B I mentioned that my husband had attended this course and played the games three years previously, he was instantly remembered and this further helped the already relaxed and receptive atmosphere. Whilst this probably helped gain their confidence to some degree I nevertheless decided not to tape record the
interview (impossible over lunch anyway) because I did not want to risk prejudicing their comments and my access.

During the joint interview A said that the main aim of his game (LUa) when played on this course was for the students to get to know each other, rather than to see how much they knew, or even to try to teach them specifics. His more detailed aims and objectives were not made explicit until after the game in his questionnaire response (see section 4.51). However, most of the joint interview was taken up by B whose game (LUb) I describe in Chapter 5 (Case Study LUb).

4.11 Outline of game

This game was a computerised business simulation consisting of twelve companies (teams) producing similar unspecified consumer durables to compete in two markets (Home and Export). The teams of students were given the Companies starting position (appendix 4.1) and then had to decide on price, production levels, advertising, research and development (R&D), machine maintenance, and whether to buy information from the tutors. Having made their decisions they then had to transfer these onto the computerised decision sheet (appendix 4.2) from which A and other game administrators entered the information into the computer. The game was interactive in that each teams' decisions could affect all the other teams. Additionally the model was programmed to respond favourably to early investment in research and development, investment in stocks and an initial low price.

4.2 Context

I observed this game being played for two days on one occasion. This was the first time that the game had been run for just two days, as timetable problems prevented the usual three day session.

This game took place in a very prestigious part of London University on a highly acclaimed Management Science course leading to a Master of Science degree (M.Sc). All of the 81
management science students were graduates, many from engineering disciplines. There were also 13 students from the Business Studies first degree course attending, who made up teams 11 and 12. At least 50% of the M.Sc students were from overseas and approximately 60% of all M.Sc students had previous work experience. Almost all the students were present on the first day since this was, after all, the first week of term. The students had received the game outline one or two days previously and most brought it with them to the game.

A (who designed the game) presented the introduction, was present throughout and conducted the debriefing. He was assisted by several other members of the department 3 of whom were present for most of the time, whilst some others appeared for short periods. All four permanent game administrators had helped run the game before. The introduction and debriefing took place in different rooms due to timetabling problems. The decision-making sessions took place in three different rooms and contained 3, 4 and 5 teams respectively.

I was also present for the whole game, sitting among the students for the introduction and debriefing and with one team for the decision making sessions. I was introduced to the students, at the end of the game introduction.

A described me as a research student, studying games and simulations whom they could help by co-operating with my requests and questions. I stood up, smiled and nodded 'Hello' to the students as he was saying this. We had previously agreed that he would introduce me. However, I now think it is better to do so yourself, although in either case you always think of things afterwards that should have been said, or could have been said more eloquently.

4.3 Observation of the Game

4.3.1 The introduction

The room was too small for the 94 students for which A apologised and promised to finish as quickly as possible. Some
people had to stand throughout and so did any late-comers, of which there were several. Before he began to introduce the game, A made sure that everyone had received a copy of the game outline and he distributed a sheet allocating rooms, teams and team members.

A remained at the front of the room for the introduction and seemed to be slightly nervous, he mixed up a few words and instructions and paced up and down. He stated that gaming had a respectable ancestry, relating it to war games and chess. He explained that because it was a simulated exercise it would not be as complex as real life but they did try to mirror reality as far as possible. He added that the model was not without its 'quirks' but then neither was real life, and that some things depended on luck. He urged the students to take this as an opportunity to find out how things function in a business and to experiment without having to face real life consequences, stressing the need for caution in real life. Then followed a brief run through of the game instructions, terms used, how to fill out the decision sheet, an introduction of other tutors (game administrators) who would be on hand should they need help. He then invited questions. There were one or two of these relating to the mechanics of the game which he answered briefly.

Finally A explained how they judge the winners, ie. simply who has the most profit at the end of the game and added that past winners' profits ranged from £150,000-£400,000. Throughout the 40 minute briefing most people appeared to be listening (there was little conversation), some took notes whilst many were reading through the game outline handout. At the end of the briefing the students were instructed to go to their respective rooms and teams. I selected team 3 at random to observe throughout the remainder of the game.

4.32 Decision making sessions: The students

i. Teams

There were 81 M.Sc students divided into 10 teams each
containing 8 members except team 10 which had 9. Team 11 and 12 had 7 and 6 members respectively from the Bachelor of Arts Business Studies course. The team I observed was in a room with two other teams and I was able to watch some of the activities of these other teams during the quiet periods between decisions. One of these teams had frequent visitors and there seemed to be considerable 'toing and froing' of its members accompanied by animated conversation and laughter. Unfortunately much of the conversation was in Greek and I was unable to follow it. The English conversation concerned the game and how well they were doing compared to the visitors.

ii. Individual Contributions

My team lost one member after the first day, who had not contributed much, talking instead to another team member about other topics and I thought he was disinterested in the game. However, I found out later that he had been ill and unable to attend. One other member made very little contribution throughout, returning late after coffee and lunch, taking no part in the discussions but occasionally querying the team's decisions after the decision sheets had been handed in.

Three people contributed more or less equally throughout the game, making most of the calculations, discussing strategies, interpreting the computer print outs and filling in decision sheets. These three had the most enthusiasm and ideas at the beginning, one confessed to boredom in the morning of the second day but kept trying (she reaffirmed this in her feedback sheet). The other two enthusiasts seemed to encourage each other by rivalry and taunts in the "I told you so" vein.

Two others seemed to be interested in the game and paid a fair amount of attention to their progress, however they were not very forceful when putting forward their ideas and their suggestions, which although listened to, were usually ignored when decisions were made. One of them kept trying to relate the teams' actions to real life in order to demonstrate the illogical nature of most of their decisions. People only began to pay attention to him when it was too late, and their
position was hopeless. The other drew graphs to plot their progress and costs; these were rarely and fleetingly consulted.

The last member of the team had a fascinating approach. At the beginning he was very involved (for about two decision periods) and keen to win judging by remarks such as "the others don't stand a chance against us", and when I asked if they minded me sitting with them he answered "of course not, you'll be joining the winning team." This involvement gradually declined as he chatted about where to eat, where he was living etc. to the member who later left, and teased the quiet lady who drew graphs. However each time the team began to fill in the decision sheet (usually in the last five or ten minutes) he became very active and often managed to persuade the others to adopt his policies. Eventually the other group members realised that his performance was erratic and were less inclined to listen to his ideas.

iii Morale

At least half the team became apathetic when their results were poor and seemingly unsalvageable. One left, two said less and less in relation to the game and three complained at intervals of boredom. They made jokes about their poor performance such as "We could always try for the biggest loss" (rather than profit) or: "We should have sold this business". They also tried to blame each other for wrong decisions and strategies and voices became raised at times. (There was no lasting damage done to personal relationships, one month after the game 7 out of the 8 had formed friendships with each other which extended beyond college hours). Three members consistently tried to salvage the Company's position but admitted to feeling bored, confused, and at times helpless. Most of the group (5 - 6) stayed together at coffee and lunch times (I went along with them) but they did not discuss the game very much, and instead used this time to get to know each other and to find out about me and my research.

iv. Competitive spirit
They were competitive in the beginning, discussing how to win and following the strategy suggested by one member who claimed to have played before and therefore knew what to do (unfortunately he had not played this particular game and his strategy was not the correct one). They were at pains sometimes to talk quietly about their plans when rival team members were within earshot. They also displayed friendly rivalry towards other teams booing and cheering when all the teams' profits were periodically made known.

v. Coping with the mechanics

The team experienced some problems filling in the decision form, putting entries into the wrong box etc. Most of them had not prepared adequately for the game, some had only glanced through the game outline, and others had not read it at all. Consequently they had problems deciding a coherent long-term strategy (or even a coherent short term strategy) and readily followed the supposed winning plan put forward by the member who had played before. From the beginning the team had to rush to fill in decision sheets, each decision period being characterised by lengthly discussions on what went wrong last time and how they should correct it. These discussions would end as someone insisted they must fill in the form now as they only had 5-10 minutes left. As the form was filled in decisions made earlier would be revoked, reversed or resolved in the last few seconds. Consequently their strategy was constantly changed once things began to go badly wrong (after the first day). They were unable to determine cause and effect partly because their decisions were so erratic and partly because they rarely considered the consequences their rivals' actions would have on the market.

4.33 Decision making sessions: The Tutors (game administrators)

As this game was played in the first week of term, the students and game administrators did not know each other very well, if at all. Some of the game administrators were the
personal supervisors of certain students and in this capacity had spoken with them individually for about an hour on the previous two days. There had been no contact other than these brief meetings.

During the game most of the game administrators took part in the actual administration of the session eg. handing out and collecting decision sheets, and processing decisions into the computer. A spent more time on administrating the game than the others but the rest were available for about 85% of the time and it was relatively easy to find at least one for consultation. They wandered from room to room and group to group, stopping to listen at times to the discussion for a few minutes. Occasionally they asked if the group needed help but usually they only offered advice if asked. They seemed friendly and approachable, smiling and making encouraging remarks to the students but were rarely consulted by my group. The group seemed a little reluctant to show their ignorance by having to ask for help. Perhaps they were trying to create a good impression.

I did not ask the game administrators, other than the game designer (A) about their views of the game and their role and they did not volunteer them. Throughout the game I kept my exchanges with the tutors to the minimum in front of the students because I was at pains to establish that I could be trusted not to pass on information about them to the tutors. I also wanted to create sufficient rapport between us so as to ensure that they would be sympathetic towards completing my questionnaire. This was not too difficult as they were a very friendly group who not only returned 5 out of 7 questionnaires (the eighth member had left before I distributed the questionnaire) but also made me welcome on a subsequent game (LUb) and responded to my request for further information about the second game.

4.34 The Debriefing

The debriefing was held in a large lecture hall at 2 pm, an hour and a half after the final decision was handed in. Most
of the students seemed to be present, many sat with fellow
team members. The game administrators sat in the front row,
whilst A stood at the front of the room on the podium.

After one or two introductory remarks, in which he expressed
his hope that the students had enjoyed themselves, he revealed
a very large graph showing the individual team profits and
losses throughout the game. Only teams 8 and 10 were still
profitable and the students broke into spontaneous applause
for team 10 as one of their members collected the prize - 2
bottles of wine! I later discovered that some teams knew in
advance of this prize (mine did, so I had assumed all the
others knew) but some had no prior knowledge.

A then described the effects of certain strategies. A
conservative policy would probably survive for a certain
period then make losses but may eventually catch up. On the
other hand, early investment in research and development and
sufficient stocks would prove slow at the beginning but it
would eventually 'take off' with the most improved product
capturing and maintaining a large market share providing the
pricing strategy was sensible (this is in fact what team 10
did). He added that everyone had acted one quarter (decision
period) too late to stop team 10 but offered some consolation
by showing graphs from previous years, which appeared to be
considerably worse.

By way of explanation of these poor results he mentioned that
people often panic at some stage and start throwing money
around, eg. into R&D, and then switch it back again when it
brings no results, as well as making imbalanced decisions. As
an aside he drew their attention to the real decision makers
ie. those people who filled out the decision sheets. Finally
the game designer stated that he hoped they had learned the
difference between profit and cash and provided an explanation
in case they had not done so. He added that maximising profit
and loss was a phoney objective because businesses may be run
for various reasons eg. tax losses and the chairman's comfort.
There were several questions about the mechanics of the game, for instance, whether the designer could alter the market to which the answer was yes he could and did so. Were there any limits to loans? There were no such limits. Were the research and development rewards purely random? Yes they were random.

There were other questions about the validity of the game, for instance, whether investing in research and development at an early stage would necessarily bring rewards in real life. No it may not, this being a function of the game. Some asked what was the product which was nothing specific. A also added that the decision quarters (periods) did not represent real time.

Finally, some questions concerned individual teams' performances or problems. Team 7 wanted to know how they could have avoided a fall in profits in a certain period. Someone else wanted to know how important marketing was in the early stages, and what was the marginal cost of advertising (there were several 'I told you so's' at this information). It would appear it was not only my team who overspent on advertising.

When the questions came to an end the students were dismissed, the whole proceedings took 40 minutes.

4.4 Informal discussion with and among game participants

I remained with my team during the lunch and coffee breaks but most of the conversation was of the 'getting to know you' kind. Comments about the game were confined to the few minutes at the beginning and end of these breaks. Most of the comments made were about how individuals felt. The lady who drew graphs remarked that she wished it would end soon because she was fed up with all the arguments (on the first day). She and the other woman in the team agreed that women were better decision makers and managers, being more pragmatic than men who were concerned only with proving their point. The quiet man who overheard this exchange agreed that the arguing was getting them nowhere, adding the entire strategy was wrong anyway, but did not elaborate further. One of the enthusiastic
men accused the other of being a 'high flyer', of wanting to win in order to impress the tutors. The latter pretended not to hear. They did not discuss their performance or alternative strategies during these breaks.

When the decision sheets had been handed in there was usually a delay of 20 minutes or so before the results came back. During these interludes strategies and ideas were debated and feelings aired. Individuals accused others of being illogical and inconsistent and of making the wrong decisions. The quiet lady who drew graphs offered to buy two bottles of wine (the prize) if only they would agree to investing in research and development. She was accused of wanting to do this because she did not want to be part of the team with the worst product, a matter of pride rather than expediency. I got the impression that most of the individuals felt that they could have done better on their own. It was also clear that some people were at times angry and frustrated with each other and the game.

4.5 Tutors comments

I interviewed the game administrator A prior to the game and he also completed an open ended questionnaire. He designed the game himself and it has been used on this course during the first week of term for several years. The game is available commercially.

Throughout the game he was cheerful and seemed happy with the teams and their performance. He was a little disappointed that the game had to be played for two days instead of the usual three days. I did not talk to him very much during the game not only because he was very busy running the game but also because I wanted to gain the trust of the students.

4.5.1 Tutors questionnaire response

I gave A an open ended questionnaire (appendix 2) about the game at the interview, which he completed and returned after the game. A's full reasons for using the game were not made explicit to me until I received the questionnaire. The
A questionnaire was designed to find out why tutors use games and simulations (and whether the competitive element in the game is important), how they expect the students to approach games and simulations, what the students may learn from this specific game, and what drawbacks there may be in the game.

A believes games and simulations to be "a unique teaching tool particularly in the enthusiasm and commitment they engender amongst the student body". He added that they may be a pleasurable way to learn techniques and skills without unfortunate real life consequences.

They also provide situational material for teaching purposes. He believes that competition in games provides a stimulus to the students which may induce them to take the exercise more seriously.

He expected "the students to be fairly but not too serious in their approach to the game and to become more deeply committed and involved as the game progressed". However, he felt that individuals' attitudes would depend on whether they had played similar games before.

There were three main drawbacks to this game in A's view:

a. The period spent waiting for results can be rather boring, they try to minimise this with coffee and lunch breaks.

b. Individuals may get left out by other members of the group for various reasons. Staff should try to prevent this but it is not easy.

c. Teams doing badly can lose heart. Again staff must try to provide further stimulation.

He expected the students to learn several things:

i. Principally to learn about each other.
ii. Start to think in business-type terms

iii. Become aware of the choice between decisions having a long or short term effect.

iv. Cash and profits are not the same things

v. Simple economies - that trying to obtain the largest share of the market is not always profitable; selling below cost is not very sensible; price wars are not really good for anyone; possibly something about breakeven analysis and costing.

vi. This is an opportunity to exercise or practice social skills eg. negotiating with colleagues.

These aims and objectives were not made explicit to the students, with the exception of the difference between profit and cash (during debriefing). The students had been instructed instead to experiment and find out how things function within a business. They were also informed during the introduction that the winners would be the team with the largest profit. I had been told at the interview that the main aim of A's game when played on this course was for the students to get to know each other (see section 4.1) rather than to teach them specifics.

4.6 Feedback sheet results

4.61 Administration of Feedback sheets

I distributed two types of feedback sheet (appendices 4.3 and 4.4), one asking students to describe what happened in the game, how they felt about it and what they had learned, the other to describe what had been particularly helpful and alternatively, harmful to their learning.

I asked the game administrator shortly before the end of the game which teams were likely to be the winners and losers and gave each member of these two teams plus my own team a feedback sheet. I asked them not to fill them out until after the debriefing session, stressed the confidentiality of their responses and instructed them to hand the replies into the Management Science Office. The secretaries had agreed to
forward these replies as soon as possible to me. I received 15 replies out of 24, and a verbal reminder from the game administrator produced two more.

4.62. Analysis of Feedback sheets

i Learning

Only one person categorically stated that he had learned nothing at all. However, most other learning is stated in rather vague terms eg. "not much" or "some". Learning was also felt to be related to how well (or badly) they were doing in the game, many felt that winning would have helped their learning. The losing teams reported being struck by apathy fairly early on and felt that this hindered or prevented their learning. I observed that many students switched off at this stage and probably did not learn much at all.

I also observed (and the feedback responses confirmed) that many students made more and more risky decisions and took gambles in an attempt to rectify their earlier mistakes. Each new catastrophe was counteracted by more desperate measures. It appeared (and many students admitted) that most students were unable to work out cause and effect, and thus had no real hope of controlling their progress.

The general confusion itself did lead to some learning. Students reported they now realise that there are many things to organise in business, and that therefore divisions of labour are helpful, that confidence is important in decision making, and that compromises are not always helpful, especially to learning.

Many students reported becoming frustrated by others dominating and insisting on their own strategies. They believed this to be harmful to their learning because they were unable to explore certain other strategies. Several students also replied that the number of people in the group (8) did not help the decision making process since there were too many opposing ideas and clashes of personality. I was
certainly aware of this during the game. However, at least one person said that his confidence in putting over his own viewpoint had increased. Two people reported that the division of labour was harmful to learning as they were confined to certain tasks and therefore did not learn about other areas.

Although the students seemed to believe that winners learn more than losers I do not believe this to be necessarily the case. Observation showed that the losing teams probably have to think of far more alternative moves, strategies and scenarios than those who either, by luck or knowledge, choose the winning strategy. I tried to find out whether the winning team won through intellectual rigour, but it seems that they knew the 'correct' formula because someone had played the game before. Their feedback sheets indicate that they learned little from the exercise. In contrast, the losing teams do show some degree of learning, albeit rather vague.

ii Feelings

Almost half the students reported enjoying all or part of the game, although some hinted that it was probably more enjoyable for the winners. Six students spoke of apathy when losing and one of frustration. These comments confirm my own observations. Three students felt it was a good "getting to know you" exercise (this was the first week of term). Other individual comments ranged from: it was motivating, it gets you in the right frame of mind, it was interesting, useful experience for decision making, it was interesting to hear others' reactions. There were also comments about how seriously people took the exercise. These varied from "certain people didn't try hard enough" to "once we'd stopped taking it so seriously we began to enjoy it".

iii Strategies

Four people admitted they had trouble getting themselves organised. Six said they could not stick to their long term strategy and changed their strategy if the results were poor. This indicates to me that they did not understand the
production cycle, variables, market forces etc. This was coupled with an overall lack of forethought, adopting a let us try so and so approach, rather than thinking about how a real company would act. Four people stated that the loudest member dominated the strategy. The winning team debated their strategy and voted when they could not agree, and they kept to their strategy throughout, probably because they knew already that this was the winning formula. It was the unity of the responses to my feedback sheet that puzzled me and led me to ask the winners further questions about how they had decided their strategy. They sheepishly admitted to knowing the formula beforehand. I must admit this had not occurred to me, I merely thought they had written the responses together.

iv Evaluation

Six students stated they had difficulty determining cause and effect ie. which variables reacted to which actions. This is probably an understatement since many refer to guessing, gambling and changing strategies when results were poor, indicating that they too could not foresee the consequences of their previous actions. Three students in the winning team did not like the game ending because it was not realistic for all the companies to shut down at one time (the way out of this problem maybe to insist all companies are left in a healthy state). Three students stated the game was not true to life because bank loans were too easy to obtain and no-one went bankrupt (a problem of teaching with games since if you stop people trading ie. playing it is difficult for them to learn anymore). One student felt that the market did not react properly. Judging from his behaviour and other comments on his feedback sheet this is probably due to his lack of understanding rather than a fault of the game. Three students stated that the tutors should have given more guidance before, during and after the game (see my evaluation 4.74)

4.7 My evaluation of the students' performance

Despite their supposed 'maturity' (about half had previous work experience and were aged between 25 - 30, see section
4.2), feelings ran high during and after the game. Many students felt they would have done better if so and so had not interfered, or had done more etc. I observed, and the feedback sheets confirm that approximately 2 or 3 out of each team withdrew in body or spirit and between 1 and 3 students 'ran' the company in most groups with the rest on the sidelines.

Most students wanted to win at the beginning, those who did poorly early on became apathetic, frustrated or resentful, whilst the winners appeared to be self satisfied. It is difficult to see what was learned from the feedback sheets and observation, most learning came from negative experiences (we won't do that again) which is perhaps not the best way to learn.

Finally it appears from observation and the feedback sheets that generally the decisions and strategies were not logical or related to real life or economic theory. Instead they were emotional or panic reactions to the previous results.

4.8 My evaluation of the game

The introduction was not very detailed and students' comments indicated that they were unclear as to what was expected of them and how to 'play' the game. There were no explicit learning objectives set for the students but they were instructed to use this as an opportunity to find out how a business functions and to experiment without real life consequences. Most students had not read the handout properly, some not at all, which did not help their decision making, or probably their understanding of the game.

There were half hour periods between handing in decisions and getting the result, which the game designer admitted could be boring. During this time the students did get bored and many lost 'momentum' ie. switched off from the game, rather than using this time to plan the next move. When the results arrived they then had to rush to decipher the computer print-out and fill in the next decision sheet. Most people seemed to have difficulty understanding the print-out and most
complained about the shortage of time. This complaint is frequently voiced. However, I have observed games since with longer decision making periods and tend to agree along with several other game administrators that most decisions are made in the final ten minutes before they are due for collection. This happens even when the game is played over a period of weeks rather than days.

Although the game administrators were available for consultation they did not force their knowledge upon the students. This may have been a mistake, more guidance may have helped the students' understanding of the game and ultimately their learning from it. However, it must also be said that the students rarely and fleetingly sought their advice, my own group appeared very reluctant to ask for help.

The debriefing was not very illuminating. There was no evaluation of individual team performances except those of the winners, no reports from the students and no comments from the other tutors. The game designer did not refer to how the game would relate to the course, neither did he state what lessons they should have learned from the exercise (except the difference between cash and profits).

4.9 Conclusions

I began this study with 3 working hypotheses

a. Competition is harmful to learning.

b. Losers may learn more than winners

c. The game needs to mirror reality in order to gain credibility in the students eyes.

I believed the first hypothesis to be true because I had observed students in previous games approaching the exercise simply as a game and playing in order to win rather than to learn. It seemed from their behaviour and responses to my questions that they believed guesses and gambling would succeed rather than carefully thought out decisions based upon
what happens in real life.

This hypothesis was certainly confirmed by my observation of my particular team, they readily accepted the supposed winning formula without questioning its implications for real life. The feedback sheets of the winning team reveal that they also accepted, with little argument, the 'winning' formula presented by one member. The third team reported that their strategy was a 'non' strategy, they were forced into action through lack of time and tried a fairly conservative approach in the beginning but from that decision onwards they reacted to the latest results.

In addition to this, the two losing teams changed their strategies whenever results were bad, trying recklessly to improve their positions. The effect of these panic measures was to prevent most students from understanding how the variables affected each other and how the market worked, resulting in very little reported learning. Competition also had the effect of demoralising the losers quite early on and of making the winners sound quite smug on their feedback sheets (despite the fact that they had prior knowledge).

My second hypothesis was neither confirmed nor denied by the responses to this game, instead it became apparent that there was not a simple relationship between winning/losing and learning. However many losers reported that their apathy and frustration prevented learning

"....the fact remains that my dominant feeling with regard to the game was of frustration. Thus I really didn't have any learning experiences during the game" 

However different losers may react in different ways. It seems some will give up and probably will not learn much more. Others will think about, and probably try, different strategies in an effort to improve their performance as this quotation shows
"...but if we had been successful right from the start I wouldn't have even thought of different approaches and would have been content to rise on the crest of success."

It seems (from the behaviour and responses from the winning team) that the danger of winning easily is that complacency may set in and the winning team begin to think that all their actions are good. They may fail to question their implications and thus they do not recognise any mistakes they made, or how the actions of the other teams may have helped them.

My third hypothesis fell by the wayside to a certain degree, it was apparent from the feedback sheets that most of the students who faulted the game for its lack of realism had achieved poor results. It seemed a case of the 'bad workman blames his tools' and although I continued to bear this hypothesis in mind during subsequent games I did not actively investigate it.

Résumé

At the end of this case study I feel that my first hypothesis ie. competition is harmful to learning has been shown to apply to this group of students. However my second hypothesis ie. losers learn more than winners is inconclusive for this group, losers felt they might have learned more if they were winning but (according to their perception of the amount they had learned) they did not report learning any less than the winners. The fact that the winning team already knew the winning formula does not appear to have helped them to learn any more, in fact their own perception of their learning from the game seems marginally less than the losers. The reported learning was so vague it is difficult to distinguish between them.

My concern over the apparent lack of perceived learning coupled with my observation of the confusion of the students
during the game plus student comments about lack of guidance led me to add a new hypothesis to explore in future case studies. That is - students need help throughout the game (not just the debriefing ) in order to be able to distinguish the means ie. the game, from the ends ie. learning.
5.0 Preamble

This game (the fourth I attended) seems to be the epitome of how not to run a game. At first sight it seems to have been a very frustrating and fruitless occasion for the majority of the students. However it proved to be a significant milestone in my research for two reasons. Firstly, those students who reported most (perceived) learning from the game appeared to have approached it in different ways to the majority of the students. This led me to begin to investigate the students' different approaches to games and how they may affect students' behaviour during, and ultimately, possible learning, from the game. Secondly, it was evident both from observation and the feedback sheets from this game that the 'input' from game administrators directly affected the students perceptions of the game, their behaviour during, and possibly learning from the game.

5.1. Introduction: general background

Please refer to chapter 4.1. which describes how I became involved in this game. The game administrator (B) was very friendly and helpful. He designed the weekend game in a very short while in response to the head of department's request. The department head had seen one in another department and felt a similar game would benefit their course. The game has been used for the last 7 years and is occasionally modified (when for instance legislation changes) and improved upon.

B felt that the game had two functions. The first being helpful in alleviating the induction crisis ("what on earth am I doing here!") which is quite common after 3-4 weeks on a new course. It helped because it was a social occasion, a luxurious weekend break in the countryside, and an opportunity to get to know more course members. Secondly, it helps the students to see that reality is 'messy' unlike the textbooks where everything is neatly explained.

B's more detailed reasons for using the game were not made explicit to me until after the interview (but prior to the
5.11. Outline of game

This game was a negotiation exercise (based upon a real life case study) between 3 groups (Bank A, Trade Union A (TU), and Company A) in environment A and 3 similar groups in environment B. Whilst students were required not to negotiate between environments it had occurred in previous years ie. Company A asked Bank B for a loan when refused by their own Bank A. The teams were all given a handout a few days before the game entitled "Pricing/loan project Background Paper". This described the company and the economic climate in which the company was trading, it's financial position past and present, and suggestions for the future of the company. In fact it contained a great deal of information, advice and instruction for the students (21 pages of A4). The case study and game is being patented and will be on sale shortly. Therefore I am unable to include any of the documents in this thesis.

Shortly before embarking on the coach trip to the weekend game the students also received "Position Papers" relating to their allotted team ie. Company, Bank or TU. These documents gave specific guidance and instruction relating to their roles and interests.

5.2. Context

I observed this game being played over 3 days on one occasion. It was the seventh time it had been played. This game was part of a highly acclaimed Management Science course leading to a Master of Science degree (MSc). The department is highly regarded by industry and has many links with commerce, industry and banking. One of the Big Five banks played host to the game at it's staff training college- a palatial mansion set in nine acres with all the amenities of a four star hotel.

All of the 82 students were graduates, many from engineering and science disciplines. At least 50% of the students were
from overseas and approximately 60% had some previous work experience.

B presented the introduction and was present throughout (though not always visible) and he also conducted the debriefing. He was assisted by several other members of the Department (almost all the staff were at the college though it was not always clear who were the observers and who were the helpers).

The introduction and debriefing took place in the auditorium. The negotiations took place in eight different rooms on two floors (one team in each room and one spare room per environment for negotiations). Each environment operated on a separate floor.

I was present throughout the game, sitting among the students for the introduction and debriefing and with one of the teams (Trade Union A) during their planning and negotiation sessions.

I was introduced to the students at the end of the introductory session. B reminded them that I was from Surrey University and that I had been present at the previous game (in the first week of term) and that I had been invited back again to watch this game. He expressed the hope that the students would co-operate to help with my research.

5.3 Observation of the game

5.3.1 The introduction

Tutor C began by reminding the students that this was a social occasion and to enjoy themselves but they would need to work hard to reach a satisfactory set of agreements for the exercise. He then quickly ran through the proposed administrative arrangements and the fire regulations before handing over to B.

B stood at the front of the auditorium - it was necessary for
him to stand in a certain place in order for the microphones to pick up what he was saying, which was a little restrictive.

B told the students that this exercise was based on a real-life study of a company whose problems he had once helped to overcome. He explained that there were two separate environments not only because there were a large number of students, but also to demonstrate that there may be different ways of looking at and dealing with problems. It was not necessarily intended to be competitive and different outcomes should be judged on the basis of the original objectives of the teams. It was not a behavioural nor a number-crunching exercise but a negotiating and problem solving exercise. He added that they may feel that there is not enough to do at first but later they may run out of time, and advised them to divide into sub-groups in order to divide the workload. Finally he ran through the errors in the game handout. Then the students were instructed to go to their planning rooms and he reminded them that sherry would be served at 7pm with dinner at 7.30pm.

5.32 Planning and negotiating sessions: The students

i. Teams

There were 82 MSc students divided into six teams. Company A had 15 members, TU A also had 15, Bank A had 12, Company B 14, TU B 15 and Bank B only 11. The banks were smaller because B felt that they had less to do. Students were assigned to teams in such a way as to avoid cliques of friends and nationalities. However a check on the team list showed that students were arranged alphabetically across teams (not within teams) though some students whose name began with A were randomly distributed.

I observed TU A throughout the game and was able to watch Company A's negotiators whilst TU A negotiated with them. I could not see any other teams because they were in separate rooms.
ii. Individual contributions

Though there were 15 students in my team only 6 or 7 made any real contribution to the discussions and negotiations. In fact 4 students dominated the whole proceedings.

The first of these 4 'volunteered' to be Chairman very early on and in this role he was able to guide some of the discussion. He insisted upon minutes being taken (unfortunately by a Greek lady whose English was not really proficient enough for the task). He also insisted that they vote on decisions and actions to be taken. Unfortunately a great deal of the voting was very confused, many people voting twice, or changing their minds afterwards. He did try hard to prevent the discussions from being too convoluted but was not really forceful enough. His feedback sheet reveals that he did not want to be too dominating and felt that he probably said too much and got his own way too often.

The second dominant character was a rather loud and flamboyant character (T) who suggested in the first half hour that they acquiesce to the Company's conditions and then enjoy themselves for the rest of the weekend. The other students ignored this so T threw himself, perhaps unwittingly, into the role of team clown. He made outrageous, often totally illogical suggestions, supported by loud but sometimes nonsensical argument. The rest of the group were obliged to listen and were at times swayed by the 'force' of his argument.

The third dominant character (X) was rather unpopular with the rest of the group. He was older than most (about 35-40) and had considerable experience in TU negotiations. He had considerable experience in many areas and never wasted an opportunity to demonstrate it. He was always first with pertinent questions during lectures and seminars and generally seemed to 'know it all'. Consequently the students were inclined to disagree with or ignore his suggestions on principle. This was rather unfortunate because he was the only student in the team who knew enough about what they
should do and how they should do it. He tried to offer advice on their strategy based upon what a real TU would do. Sadly many of the students could not relate to TUs and could not bring themselves to act in this way and so ignored his advice.

The fourth dominant character volunteered to calculate and then negotiate on pay and conditions. He admitted he saw the whole exercise as a game and as an opportunity to gain negotiating skills. He resigned himself to the fact that most of the arguments within the group were circular and took it as an opportunity to persuade them that his was the best course of action. He also played a very active part in the negotiations between the Company and the TU. His feedback sheet revealed that he found the exercise very useful for gaining negotiating skills.

Three other team members contributed periodically. Two of them were female and confessed to me that they were bored and frustrated by the behaviour of the other students. One stated she could sort the whole thing out by herself in about 10 minutes. She kept offering suggestions and insisted they were not only listened to but taken into account. She was sometimes successful. The third student kept trying to remind the team that they were supposed to be a TU and as such should consider their members first and foremost. He was occasionally heeded but the team had very little sympathy with TUs and really could not assume the role they had been given.

The rest of the team took very little part in the proceedings 3 or 4 of them did contribute once or twice but at least 4 students said nothing over the 3 day game.

iii. Morale

Several team members confessed to boredom and frustration during the 3 day game for several reasons. Some were frustrated because they could not make themselves heard, or could not influence the rest of the group to their own way of thinking. Others were frustrated because everything took such a long time. A couple of students complained that they did
not have enough information and that which they had was not easily understood. Several students admitted they were bored by the tedious nature of the discussions. Only two students said they were enjoying themselves in my team namely the Chairman and the pay negotiator who were the two most active students. These two also consistently tried to seek a satisfactory solution to the problem. The other two dominant team members occasionally left the room in a temper. During coffee breaks, meals and social occasions the teams did not stay together. There was a little 'after hours' negotiations in the bar but these were never really followed up the next morning.

iv. Competitive spirit

They were not really competitive - there was no right or wrong solution, or any obvious winners. They did not even develop a 'them and us' attitude towards the company (something that did happen in environment B and which X was trying to foster) which I had expected to observe. On the whole their attitude was: 'it's only a game, why bother', and they were also severely hampered by their inability to assume the proper role of a TU.

v. Coping with the mechanics

They had not studied the game handout in any great detail; some students had not looked at it at all. This meant they all had to read it during the first half hour of the planning session. They also had to keep checking things in it during the game, frequently failing to find what they were looking for or misinterpreting it.

There were also additional reference materials available for the students to consult. These covered such things as the retail price index, newspaper clippings about the real life company, government papers about price and wage policy etc. Of the information available the team only consulted the newspaper clippings and the retail price index, and then only fleetingly. They were unable to decide whether they should be
negotiating a pay rise based on the 1977 figures with inflation at aprox 20% (which is when the case study was first written, therefore all the figures are based upon this year), or on the present 1983 figures (inflation approx 5% - which to my amazement they did not know). This had disastrous consequences upon their negotiations because they eventually decided to assume it was 1977 (probably because they had no idea what the inflation rate was in 1983), and put in for a 50% pay increase. The company on the other hand assumed that it was 1983 (because all the government documents and retail price indices were up to date) and offered them a 5% wage increase. Thus they started from such opposite poles that it took the rest of the 3 days to find a solution. In fact they only managed to do this when the TU agreed that it was 1983 and changed all its demands. Sadly they reached a compromise too late, the Bank refused a loan and the Company was bankrupt.

5.33. Decision making sessions: The tutors (game administrators).

This game was played four weeks into the first term, and therefore most of the staff were familiar to the students. One member of staff was assigned to each team and at times sat in the room with them. Our tutor did not spend much time in our room but was available (but not obviously so) if he was needed. He did not proffer advice and was only asked once by my team for help. B went from room to room and observed and offered advice or further details when he saw fit. He was also available for consultation, although again my team only consulted him once.

The other tutors, (not those assigned to teams) including the Head of department and his wife, all listened in from time to time for about 5 -10 minutes, to each team. They did not speak to the students and the students tried valiantly to ignore them.

One or two of the tutors commented to me in the bar that this year the students seemed to be doing particularly badly,
adding that they had little idea of what to do or how to do it. I nodded and smiled in the right places not wishing to suggest that perhaps they should be at pains to enlighten the students.

5.34 The debriefing

The debriefing was held in the auditorium at 11.45am which was fifteen minutes after the negotiations had ended. (These fifteen minutes were used for writing up a brief report on the proceedings). Most of the students and tutors seemed to be present. B and C were at the front of the auditorium and B announced that they did not have much time and therefore the representatives would be required to give reports of up to five minutes each.

Company A

Their representative had been the toughest and most active negotiator when dealing with my team. He described the organisation of his team as being split into five groups, one for each of finance, economics, industrial relations, pay and marketing. They had an 'expert' in each group and this division of labour had helped them enormously. He said that they had sent teams of negotiators to both the Bank and the TU. They thought that they had reached a workable agreement with the Bank but the TU negotiations had been very difficult. Eventually they reached a mutual agreement with the TU over pay and redundancies and had introduced a profit sharing scheme. However, by this time the Bank had refused to do business and the Company was now bankrupt. There were no questions from the auditorium. B then called on Company B.

Company B

Their representative was obviously embarrassed and nervous. He said that they had divided into three groups, Finance, Marketing and Production/labour relations. He felt that the marketing plans and discussions had been totally unhelpful. He added that within their group they had three or four
students who had dominated the proceedings and one other (different) group of students who actually made sense. The TU in environment B was totally unco-operative. They called in the receiver at 11.15am that morning because they had failed to reach any agreement with the bank or the TU and therefore they were all out of work. There were no questions for Company B.

**Trade Union A**

My team was represented by X because no one else wanted to do it. He presented his own version of what had happened. He described the TU's position as wanting no redundancies at all and a substantial pay increase. For these concessions the management wanted to receive the TU's cooperation in their attempt to save the Company. They had decided to be aggressive in their demands and their negotiations but the Company had turned out to be even more aggressive. When the negotiations ended in disarray the TU had discussed the possibility of buying the Company but had decided against it. They eventually reached a reasonable agreement but the Bank foreclosed on them. He added that most of the students kept forgetting that they represented workers who would have to be consulted and persuaded at some stage, and would probably reject outright most of the suggestions that the team made. He said that it was interesting to note that half of the team had tried to act as if it was a real-life situation whilst the other half had acted as if it were a game. The different attitudes led to very different suggestions and actions by the team members. This did not help them in their negotiations, even after they had discussed the problem. There were no questions.

**Trade Union B**

This student began by stating that they had ended the game by occupying the factory. Prior to this they had negotiated a loan from the Bank in order to buy the company. To do this they had to demonstrate they were capable of running the company and had suggested various improvements which included
having less management (staff) and also a productivity deal. Then unexpectedly the Bank withdrew their offer and would only negotiate with the Company. The student added that the management (Company B) were thoroughly incompetent. They had dictated their offer on pay and redundancies at the beginning of the game and then refused to negotiate any further. This had been a total waste of everyones' time and was an absurd way to run a company. The student was obviously fed up with the whole exercise and there were a few "here, here's" from the audience. In spite of this there were still no questions. So B called Bank A's representative.

Bank A

Their objectives during this game had been to maximise their profits, bearing in mind their responsibility to their shareholders and industry. Company A had asked them for a £25 million loan very early in the game but could not convincingly demonstrate a need for it. They settled for £10 million not long afterwards. The Bank said they had to decide what the Company actually wanted and what was best for the Bank, the Company and the shareholders. Eventually they had to turn down the company's proposals for a new computer (for more efficient admin) and a new product range. They refused a new loan but agreed to extend the repayment time of the existing loan. The student said the Company's attitude to the Bank was "they owe us the loan". There was no reference made to the negotiations with the TU. There were no questions.

Bank B

This student complained that their elected Chairman did not run the proceedings very well. Their discussions were too long and inconclusive. Their negotiations with the Company were tense and formal. Nevertheless they were able to make decisions faster after these negotiations, largely because the Company was incompetent. They were unable to establish a sensible communication link with the Company. In fact they had to force meetings with them by threatening to foreclose their loans. He added that before the end of the game the Company
voluntarily went into liquidation.

Once again there were no questions, but before B could give his views a student from Company B leapt out of the audience, stating that he felt someone should explain why his team had done so badly. He agreed they had been incompetent but it was not all their fault. The TU and the Bank had demanded facts and figures from them which they had no idea how to provide. They did not know where to find the relevant information or how to do the necessary calculations when they did find it. They did not have the necessary skills to cope with this kind of exercise. He added they should have been taught these skills first, before they had the exercise. Having said his piece he left. He was obviously very upset by the criticism levied against his team. The first half of his explanation was apologetic the second critical and angry.

B stood up to deliver his views on the game. He began by explaining that the Companies were not necessarily to blame for failing to reach a satisfactory agreement because they had a very difficult task. He said he proposed to briefly discuss:

A. What happened to the Company in real life
B. How the students had performed
C. What use the game was to them

A. The Company was an engineering company in Surrey (he named it) it had a very strange organisation which had far too many administrators and managers (about 60% of the staff). It solved its problems by cutting down its stocks, participating in a management scheme and by having 100 or so redundancies. The company also made some sensible pricing decisions (in the game this was hardly ever discussed). After 8 years the company was a 'model company' though its parent company went bankrupt last year (1983). It was helped enormously by the trade boom in 1973.

B. How did they perform? B divided their performance into two parts, outcome and process, but only talked about the process.
He said their discussions were poor because they had no agenda or structure; as a result they just 'went around in circles' getting nowhere. He added that they were going to have a wine and cheese luncheon to discuss the game further with the students.

C. What use is it? B explained there was no accepted method for evaluating games "you either like them or you don't". He said this was a very complex game which may not seem especially relevant to them now, but they may well get the benefits from it in a few years time when facing similar problems at work. At this point B said they would have to break for lunch because they had to get the coaches back to London, unless there were any quick questions. There were none.

5.4 Informal discussion with and among game participants

I remained with my team during coffee breaks and spoke to other team members during meals and social activities. All the teams tended to split up for meals as students joined their friends. I usually joined the group of students that I had observed at LUa for meals but spoke to several different students at other times.

During coffee some of my team spoke about how the game was progressing and their views and feelings about it. Several students said the team was too large, others that the discussions were getting nowhere. One lady said they were the original committee who designed the camel (everyone adding bits so the whole thing looks ridiculous in the end). The chairman admitted that he was enjoying himself despite the convoluted arguments. Several students told me quietly that they could do a lot better if so and so did not keep interfering.

There was an interesting debate between X (the unpopular student) and several other students about whether they should act as though they were a real TU or treat the whole thing as a game. X could not see the point in 'playing' at being a TU
for 3 days. He wanted them to act as a real TU and remember that they had members whose interests they were supposed to protect. The other students could not bring themselves to approve any actions that might harm the company, arguing that if the company did well then so would they. This line of thought led them to decide not to strike, in fact not to even mention the threat of a strike to the company! X reminded them that in real life a TU would not be so passive, but the others argued that the object of the game was to reach an agreement with the company therefore they did not have to behave like a real TU.

Students from other teams commented to me about their teams' actions and how they were enjoying it. Those students who were in the Banks confessed that they knew little about banking and consequently asked for and received help from B. This help took the form of advice and a considerable amount of reading matter. When they had assimilated this they were happier about their role, but found that the company and TU had no idea about what procedures and financial planning were necessary in order to secure a loan. Bank B were extremely frustrated by Company B's incompetence.

The other TU(B) had several 'militants' in it. A couple of students had told me before the game began that they were going to ensure the company did not get its own way. The 'militants' thoroughly enjoyed themselves during the game; they occupied the factory quite early on, and delighted in the companies confusion. Some of the other students, however, were rather frustrated by the stances adopted by the leaders of the Company and TU because they prevented any opportunities for worthwhile negotiations to take place.

The company negotiators (A) that my TU negotiated with found the experience useful and felt they had done some 'tough' negotiating. One lady was extremely annoyed by X's attitude towards the negotiations saying he was very rude and aggressive. X thought the whole exercise was a complete waste of time, a feeling shared by several other people, mainly from environment B. It was X who suggested the cheese and wine
5.5 Tutors comments

I interviewed the game administrator B prior to the game and he also completed an open ended questionnaire. He designed the game himself and it has been used on this course for several years. It will also be commercially available in the near future. Throughout the game he was cheerful but busy, and seemed happy with the teams and their performances. Some of the other tutors were not so happy with the students' efforts. They felt that the students were not taking the exercise seriously enough and that they were not as resourceful as previous students.

5.51 Tutors questionnaire response

I gave B an open ended questionnaire (appendix 2) about the game at the interview. He completed and returned it before the game. The questionnaire was designed to find out why tutors use games and whether the competitive element in the game is important. It was also intended to discover how they expect the students to approach games and simulations, what the students may learn from this specific game and what drawbacks there are to this game.

B uses games as a way of making "practice attempts at dealing with situations in which mistakes can be very costly or dangerous". He adds: "Also people do seem to remember dramatic situations, so that points can be made that might otherwise not be appreciated".

The competitive element in the game was not important in B's opinion "The game's main use was to illustrate the possibilities for co-operative, integrative bargaining - positive sum games". He hopes that "students can recognise the competitive elements in management are often exaggerated; and even conflict can be handled more or less constructively".

He expected a few of the students to withdraw in spirit, if
not in body (this was a weekend course - making it difficult for the students to 'escape'). "These (students) tend to be few, with no industrial experience, from authoritarian, non-conceptualising disciplines ie. where they are usually fed with structural problems and "set routines" for solving them or from authoritarian parts of the globe". In addition he felt that the game requires a maturity of approach which is not always present.

There were two drawbacks to the game that B perceived - from the students point of view there is some imbalance of effort at various stages ie. "nothing to do for a while" then overload. From the administration point of view the game needs annual updating to adjust to the economic climate.

B expected the students to learn about and gain experience of several things.

a. They should appreciate the complexity of most management situations.

b. They could learn the inadequacy of most standard routine practices and learn the need for non routine solutions.

c. They should learn something of the proper conduct of meetings.

d. They would be able to practice speaking up in a group, contributing to its activities.

He felt that students without industrial experience would not be able to make use of the knowledge provided by the game for some years.

In summary, B states "my view is to present the game and say here is a real life case; discuss it and make what you can of it". Which is more or less what he did say in the introduction to the game (section 5.31).
5.6 Feedback sheet results

5.61 Administration of feedback sheets

I distributed a new feedback sheet (appendix 5.1) asking students what they expected from the game and what they thought the tutors hoped the students would achieve as a result of playing the game. It also asked whether winning was important to them, and if this had affected their approach or their learning. In addition it asked questions about their decisions and what affected them, and what they found least and most useful about the game. There was also an opportunity for them to give additional comments and views.

I distributed 6 feedback sheets to each group (36 in all) asking for volunteers to complete them and stressed the confidentiality of their replies. I also instructed them to return their sealed envelopes to the Management Science office and then the Secretaries could forward these unopened to me. I subsequently received 9 out of 36 and a written reminder produced a further 5.

5.62 Analysis of Feedback Sheets

i. Learning

I asked the students what they had expected from the game. Some (5) clearly expected to learn something about real life business problems and how to solve them.

"I hoped to be in the Company group to find out more about a Company's relationship with Trades Unions. Having been assigned to the Bank I expected to find out a bit more about how a Bank would assess a Company's application for a loan." LUb 39q

"I expected a full understanding of a firm's economic problem. Using discussion and evaluation of certain aspects of the problem, I thought that an hypothetical solution might arise for the problem." LUb 38q
"An overall Company problem, involving multi-sided issues (financial, labour, administrative) to be resolved." LUb 37q

Four students expected the game to involve group work in some way.

"Group dynamics should also have a very important role throughout the game, especially in the internal (Company) and external (Bank, TU) negotiations" LUb 37q

"I felt that it was important to study how the group operated, looking for stereotypes and try to understand the concepts behind a group acting 'as one'." LUb 36q

"...the game should have provided an opportunity to voice opinions within a group atmosphere" LUb 38q

Two students felt that they would learn or practice negotiation skills and one student felt that he would learn more about chairing meetings. Two more felt that the game was an opportunity to put theory into practice. Three students were expecting very little or nothing from the game; one of these was hostile to certain aspects of the game and expected to learn very little from it.

"I certainly anticipated difficulties in reconciling the wish to 'play the part' fully with the contrived situation in the case, feeling that unlike reality, the situation would be 'designed' with particular actions intended (to the designer's belief), but in practice totally obscured by ambiguity and unlikely contrivance. I expected the negotiations in particular to be very artificial- in general that the whole game would be a frustratingly artificial role playing exercise." LUb 32q

I also asked what the students thought the tutors hoped the students would achieve by playing the game. It seemed that they believed the tutors had greater expectations of the game
than the students themselves:

**Students view of tutors expectations**

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<tr>
<th>Topic</th>
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<tr>
<td>Learning about negotiations</td>
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<tr>
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<td>7</td>
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<td>2</td>
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<tr>
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</tr>
<tr>
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<td>3</td>
</tr>
<tr>
<td>Getting to know you exercise</td>
<td>3</td>
</tr>
<tr>
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<td>1</td>
</tr>
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</table>

When asked what they had learned, most (8) felt they had learned very little or nothing.

"There was too much ambiguous (ie. contrived) information to allow any but the most trivial analysis from a union side of things. Certainly the data wasn't presented in a way to encourage analysis (precursing possible understanding of concepts through practical application)". LUb 32q

"Not much academic was to be learnt. This game was so unrealistic. There were no practical applications". LUb 38q

"I don't believe I came out of the game understanding any concepts!....The only practical point I came out with was that negotiations are difficult and that it is easier to go round in circles than to reach decisions!" LUb 31q

The remainder of their perceived learning largely centres on the difficulties of negotiation and dealing with others with opposing views (5). One student learned that he should stop talking and listen to others, whilst another learned that good communications are very important in situations such as these.
ii. Feelings

There were a great many strong feelings and emotions generated by the game. Whilst several students enjoyed it or found it interesting, most expressed some negative feelings either about the game, other students, or the tutors.

"...because of the nature of the game (conflicting) and because there were no mediators or put and set rules, lots of personality conflicts developed and interestingly enough were carried out of the game and into the socialising during the weekend". LUb 37q

"...items needed:
mediators to make sure things do not get out of control and that feelings are not hurt. The 'consultants' (tutors) actually inflicted (forced) conflict, which would not have happened naturally. That's Wrong !!!" LUb 37q

"As a whole I think that there was a lack of experience and maturity among members within the groups......this brought the aim of the game a bit aside and resulted in a lack of interest therefore participation of certain members (which is rightly justified)" LUb 33q

"The game brought out the inexperience of those playing and so at times resembled a boys playground in a school" LUb 35q

"It is a game. It cannot be realistic as there is no real loss if you lose. Who needs to compromise in that situation?" LUb 38q

"I don't think I'll be so aggressive in real life situation. I'll be more conservative (not so "risk - accept") in making my decisions". LUb 34q

"I lost my temper several times especially when dealing with * which I shouldn't have done." LUb 42q
"I was involved in the TU dealings which started not badly but progressively tended to be of a very childish nature, the TU being there just for the sake of arguing, not really having the general goals they were supposed to have in real life." LUb 33q

Generally I think that it is fair to say that many students were dissatisfied or unhappy with the interpersonal results of the game.

iii. Evaluation/Views

Five students felt that the game was useful as a 'getting to know you' exercise. Others were worried that a substantial number of students could not or did not contribute to the game at all. Some were aware that by taking an active part themselves they were preventing others from airing their views.

"As elected chairwoman I felt a need to throw up suggestions in the silences when we were short of time and to bring some form to the discussions. This affected our team approach because people were either reluctant to disagree at first, or happy to let me make mistakes." LUb 39q

"Some people said nothing. Some said too much. Those people that did speak a lot certainly achieved more provided that they were tactful. Those people who said nothing were often ignored when they did say something even though it made sense. A valuable contribution was then lost." LUb 38q

Some students thought that it was a useful exercise in negotiation and group work. One thought it interesting to see how others react to the same situation, and two others thought that it was a useful exercise in chairing meetings. Most of the comments about the game centred upon the actual content of
"The case study for the game was, in my opinion, too advanced for the majority of the participants." LUb 37q

"I must say though, having worked for a number of years, that although situations could be more complicated one would tend to have in hand more precise information from a more established structure and have a better feel of the situation and the environment in which it is taking place." LUb 33q

"People tend to lose interest and give up towards the end if they are not being too successful this can spoil the game for other teams." LUb 44q

"Generally enjoyable though the amount of work that each of the groups had to do was not evenly distributed. I felt that we were continually pressurised by both the Bank and the TU to come up with some figures fast." LUb 42q

"I role-played a tough approach with the Union in trying to compensate for their high demands. Because of this, a lot of the Union people still look at me cross, I actually went up and sort of apologised." LUb 37q

"At times, extravagant and ridiculous directions were contemplated and even seriously investigated. The group continually chose to ignore previous decisions on strategy and common sense positions. Almost lemming-like they would dash to the latest precipice which attracted them." LUb 35q

"I think that we should have had more participation from the Tutors and a more clear explanation of what was expected of us. These problems generated a lot of confusion amongst the students and on the last day part of the good climate was eroded." LUb 43q
"Items needed- Set of ground rules for the game concerning;  
  * nature of role playing  
  * conflict resolution approaches  
  * game/ social set interactions."  
  * mediators as peace keepers. LUb 37q

"I feel that intervention by tutors to prevent any participating group adopting a stance which would close down opportunities for the other groups to practice management skills would be very desirable."LUb 36q

"The game does need an analysis posed afterwards so that people can learn from it ie. what were the best strategies and the main pitfalls. Otherwise the educational factor is lost and little is learned and it becomes just a 'game'."LUb 40q

"I think that the feedback session at the end didn't explain a lot of things. (It wasn't really a feedback session.) I was expecting an accurate analysis of the group's behavior and the results obtained, but nothing happened."LUb 43q

Overall, it seems that the students were dissatisfied with the organisation of the game, lack of instruction, assistance and analysis/debriefing.

iv. Competition

I asked the students how important 'winning' was to them, whether this affected their strategy and if this was helpful or harmful to their learning.

"People were at first confused. After 2 hours people wanted to win in their way. After 5 hours people become bored. (It would be nice to win, so go for it. If we lose it's not the end of the world - attitude)." LUb 38q
"Very important. That was a great part of the objective. It was the incentive of putting the company back on the way that kept the 'drive' for negotiations". LUb 33q

Winning "served as a discipline to the group as long as it believed in the need to win, or the likelihood of winning" LUb 35q

"Right at the end, a lot of people identified a definite personal goal - reaching a settlement was suddenly all important, this attitude was seen also in the Company and concessions unthinkable until then were made in order to 'win' in this way" LUb 32q

"In hindsight it was well worth gaining the final agreement (however false and useless) because everyone came out cheerful - without the agreement the final memory would have been of frustration and disinterest" LUb 32q

Several students defined winning as 'getting ones own strategy accepted' and concluded that several people pursued that goal successfully. In general it seems that because this was not clearly a 'win/lose' game, teams were not especially competitive but some individuals within the teams were. There was more confrontation between teams than competition ie. "this is our position and we're not budging".

5.7 My evaluation of the students performance

Many students were unprepared, ie. had not read the handout or did not read it thoroughly. Neither did they make enough use of the other information that was available. In addition they were reluctant to ask for help, even when a tutor was present when they were having problems.

Some students felt a little anxious at expressing their views to the others. Some developed confidence during, and possibly as a result of, the game and played a more active part later. Others remained virtually silent throughout, especially those
from eastern and Asian cultures. About one third to one quarter of the students in our group dominated proceedings verbally, although votes were taken in my group. The group obviously found it difficult to reach decisions. Debates were circular. There was very little order or structure to the discussion in our group (and other groups report similar problems), though the various chairmen did try to structure it. Voting was often very confused; students did not know at times what they were voting for.

There was very little contact or discussion (espionage, wheeler dealing) between groups. There was also very little trust or co-operation between groups, for instance, by pooling their information the two companies, TUs and Banks could have saved themselves a lot of work and perhaps have reached more satisfactory conclusions. Instead students seemed to accept the 'rules' and stuck to them without questioning their validity or checking their (often wrong) assumptions about them. I think this was partly a function of thinking in terms of a game (mustn't cheat etc) rather than real life - because in real life people would be trying all kinds of innovative things to 'save' the company and thereby their jobs.

They had problems in deciding whether they were playing a game or reflecting real life. Some students actually stated that they were playing a game and therefore would do certain things that they probably would not contemplate in real life. Other students insisted that they should be reflecting real life and base the strategy accordingly. Occasionaly someone would ask if such and such were allowed "in the game". Conversely, occasional references were made to reality: "is this normal in real life?" or "is this a typical amount to go for?", but on the whole real life was not their yardstick for actions or decisions. On the whole they did not take the task very seriously.

5.8 My evaluation of the game

It must be remembered that one of the reasons for playing the weekend game was for students to socialise and enjoy
themselves. The social part of the weekend was a great success, the drinks bar was not only cheap but stayed open until late. The students and myself truly appreciated our good fortune in these areas. However the game was not so well favoured. The introduction to the game was very short and emphasised the social aspects of the weekend rather than the learning purposes of the game. This was deliberate since B wanted them to "make of it what you will". Students report being confused over what to do and what was expected of them. During the game tutors wandered in and out of the various rooms stopping to listen occasionally. There was a tutor assigned to each group permanently - ours was present for approximately a quarter of the time. The tutors rarely offered advice and were not terribly helpful when asked. Some students actually believed the tutors deliberately encouraged conflict. The debriefing was rushed, because lunch was about to be served. Even so, there was very little debriefing by the tutors just an embarrassed résumé by each team representative. Most of the students felt there should have been an analysis of their performance and a detailed explanation of what had happened to the company in reality.

5.9 Conclusions

I began this study with 3 working hypotheses:
1. Competition is harmful to learning
2. Losers may learn more than winners
3. Students need guidance throughout the game if they are to learn from it.

In this game several students defined 'winning' as imposing one's own views upon the group or the groups demands upon the 'rival' groups. The entire proceedings were dominated by a few people who employed two very different approaches - those who wanted to 'win' ie.to get their views/policies accepted, and those who wanted to carry out specific roles or tasks eg. chairperson or negotiator. This was probably detrimental to some of the other students' learning because they were then unable to pursue alternative strategies (which may have been more successful).
However, there were many students who wanted to 'win' by forcing the other groups to accept their proposals. This undoubtedly affected not only their own learning but also the students in the other groups. There were several complaints that groups should be prevented from taking actions which made negotiations (and thus further learning) impossible and encouraged extreme reactions, eg. occupying the factory. In addition, the desire to win made students change strategies frequently when negotiations did not produce the expected results. Their constant circular debates (about changing their strategy) did very little to aid their learning and only succeeded in causing frustration. Finally in an attempt to 'win' at the end (by this time 'winning' had become merely reaching an agreement) they abandoned most of their demands and met the Company 'half way'. Very few students report any perceived learning from this game. Thus I would conclude that competition in this game was harmful to their learning.

My second hypothesis ie. losers may learn more than winners is a little difficult to test in this game where there are no obvious winners or losers. Those students who 'won' ie. imposed their will upon the group, do not report any more perceived learning than the 'losers'. However those students who wanted to adopt specific roles or carry out specific tasks do report considerable perceived learning.

A large number of students played little or no part in the proceedings. It was difficult to tell from observation whether this was because they were confused, uninterested or simply did not have a chance to contribute. Their feedback sheets indicate they were frustrated by the strategies adopted and by the other students' behaviour. Some report it was difficult to know what to do because of lack of information. Losing teams ie. those who did not reach an agreement, report a great deal of frustration and very little learning. Thus it appears that losing may prevent learning when the experience is very frustrating and demoralising.

This game certainly demonstrated the need for tutors' guidance
during the game. A great many of the problems of the game and the students stemmed from a lack of information. The fact that the majority of the students had not read the game handout properly, coupled with the extremely short briefing, meant that most students did not know where to start. From then on confusion reigned for most of the groups. The game administrators could have averted most of this confusion by giving guidance, but chose not to do so. At the final debriefing it was obvious that most groups were still confused and that several individuals were unhappy about various aspects of the game (see 5.34). Once again the game administrators could have taken a more positive approach, perhaps giving their interpretation of events and possible solutions to the conflicts that had arisen. In addition they could have defused the highly charged atmosphere and made sure that students were brought out of their roles so that tensions from the game did not spill out into real life. This may have left the students with a more rational view of the game and one that they would be able to reflect upon as a learning experience. Instead they were left with feelings of anger and frustration.

The problems my team had about whether they were playing a game or trying to mirror reality could also have been minimised by guidance about the proper role of a TU (so could their problems of role conflict). Thus it must be concluded from this game that students do need guidance throughout the game to facilitate their learning.

It seemed from my observation of student behaviour during this game (and some of the feedback sheets confirmed) that different students were adopting different approaches to the game. Some saw the game as purely a negotiation exercise and adopted a role where they could develop negotiation skills. Others were mainly interested in winning and pursued that goal. Some wanted to learn specific things and from the game in general. Their feedback sheets indicated they had learned different things from their different approaches to, and treatment of, the game. I resolved to investigate this further and added the question: "What kinds of approach do
students adopt towards games and simulations?" to my 3 hypotheses for the next game.

Résumé

At the end of this case study I felt once again that my first hypothesis ie. competition is harmful to learning, had been shown to apply to this group of students. My second hypothesis ie. losers learn more than winners, was not proven. Many of the 'losers' in this game report very little learning and much frustration. However this is probably partly due to the organisation of the game. My third and new hypothesis ie, students need guidance throughout (added because the last game was poorly administered and students reported confusion and little learning), was amply demonstrated by this game. Overall there was very little reported learning from this game and many students severely criticised its organisation and the lack of guidance they received throughout the game.

During this game I observed students adopting different approaches to the game which affected their behaviour during it. As a result of this I modified my questionnaire design to attempt to investigate this phenomenon further. I also reviewed the data from previous games to see if students had adopted different approaches in these games. They had done so, but I had been too absorbed in the effects of competition to notice it. I decided I would concentrate upon this in the future.
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6.0 Preamble

All the games I had observed had revealed that the way students approached the game influenced their behaviour and decisions during the game. In addition, it was apparent that the game administrators could influence the students' behaviour during the game and perhaps their approach. I still believed that the competitive element in games influenced much of the students' approach and behaviour, but by now I realised that there was not a simple relationship between competition/winning/losing and learning. Whilst losing may cause greater reflection in some students in certain games others tended to become frustrated and withdrew in body or spirit. Thus I embarked on the next stage of my research with several areas to focus on:

1. How do students approach games?
2. How does their approach affect their decisions/behaviour?
3. How can game administrators affect students approaches and decisions/behaviour?
4. What are the effects of competition upon learning?

I was fortunate to gain access to two sessions of the next game (PLa and b). It is a well designed game and it is run by a team of very professional lecturers on a regular basis.

6.1 Introduction: General background

I became involved in this game through a colleague in my department at Surrey University. She had been involved in some research in the polytechnic concerned and had heard that they used business games as part of their management courses. She suggested I write initially to her contact at the polytechnic and he would put me in touch with the relevant people. I did as she suggested and he arranged that I should attend the next game and suggested I contact both the game designer T (who would be involved in running the game) and, initially, S who was the person in charge of that particular course. I duly telephoned S who had not heard of me but
welcomed me to the game inspite of this. He suggested it would be better for me to talk to T because he had designed the game.

I telephoned T to arrange an interview with him before the game and sent him my research proposals. During the interview T said he had designed the game because he felt that the existing computerised business games left a lot to be desired and he also wanted to improve the learning upon this and other business courses that the polytechnic ran. He said that he did not expect this group of students to do particularly well at the game. He did not think they would try very hard (some would 'opt out'), and some were not very capable anyway. His objectives were clearly set out in the game handout (appendix 6.5) and neither of us felt any need to reiterate them at the interview.

I was more interested in finding out whether his hypothesis (stated in the game introduction), namely that losers may gain more from the game than winners, was based only on his experience, or on any research he may have undertaken or discovered. He replied that he put that statement into the game introduction to boost losing teams' morale. However, he does believe it to be true but has no research findings to substantiate it. The remainder of the interview was concerned with finding out details about the students, teams etc.

6.11 Outline of game

T's game was a computerised business simulation consisting of 4 companies (teams) producing and selling instant mashed potato in several markets. The teams of students were given the Companies opening balance sheet (appendix 6.2) and then had to decide on price, production and staffing levels, advertising, marketing, research and development and machine maintenance. In addition they had to negotiate with the specialist tutors on marketing, industrial relations, finances and buying goods. Having made the necessary decisions and negotiations they had to transfer them onto the computerised decision sheet (appendix 6.3) from which T and other game
administrators entered the information into the computer. The game was interactive i.e. each teams' decisions affected all the other teams.

6.2 Context

I observed this game being played for 3 days on 2 occasions. It is run several times a year on different courses both within the polytechnic and outside it for various commercial companies. This game took place in a London polytechnic on a Diploma of Management Studies course. There were about 35 students on the course (the tutors were not sure how many would return after the Christmas holidays) and 28 played the game. They were a mixed group of students, some of whom were graduates. About 75% of the students had previous work experience, while some were seeking a change of career and saw the course as a way of achieving it. Approximately 50% of the students were foreign. The age range was mostly early to late 20's with one or two in their 30's and 40's.

Almost all the students were present on the first day (the first day back from Christmas holidays), two students arrived a day late and one student did not turn up for the game at all. The students had received the game outline at the end of the last term and most brought it with them to the game.

T presented part of the introduction, was present throughout and conducted part of the debriefing. He was assisted by 4 other specialist tutors (who acted as consultants, advisors and negotiators) and who were present for most of the time. All 5 game administrators had helped run the game before. The entire game took place in one room except for the specialist introductory sessions i.e. marketing, finance, industrial relations (IR) and production. They took place in separate rooms with the specialist tutors.

I was present for the whole game, sitting among the students for the introduction and with one team for the decision making sessions and the debriefing. I was introduced at the beginning by T who told them I was a research student,
studying games and simulations and who would sit with one team and would be giving out a questionnaire and possibly interviewing volunteers at the end. I nodded and smiled at the students as he said this.

6.3 Observation of the game

6.31 The introduction part one

Students were still standing around, chatting in groups ten minutes after the session was due to start. Three tutors were present and were concerned with administrative arrangements. One put the timetable up on the board. Then S welcomed the students back after the holidays and hoped they were sufficiently refreshed etc. He then handed over to T saying it was his game and so it would be advisable to sit and listen carefully to what he had to say.

T said he would explain who the tutors were and what roles they would be playing, give a general briefing about the game and tell them which team they would be in. Then they could get together to plan their strategy before the functional (specialist) briefings at 12.15pm. They wanted the students to make the first 3 decisions by 3.30pm in order to get one decision back the same day. He added, they could stay on in the evenings if they liked because the room was available (several eyebrows were raised at this).

At this point, T launched into the main introduction. He said he did not like the term 'game' because it implies something that people should try to win. He prefers the term 'simulation' - pretending to run a company. The object is not to win but to learn. He added that different students may learn different things and he would try to find out what they had learned from it at the end. The companies objectives are to maximise the share price (initially £1) and they should be aiming at between £3 and £4 per share. He also warned them against leaving the company in an unhealthy position, they must ensure that the company was a 'going concern' at the end of the game. T then put up his objectives on an over head
Objectives

1. To gain an insight into business as a whole (one reason for developing the game was to show how individual functions integrate eg. finance, industrial relations, marketing).
2. To practice previous coursework.
3. To demonstrate the interdependence of functions.

T advised them it was not necessary to take copious notes because it was all in the game handout. He then explained how to play the game and fill in the forms. He advised them to start planning and filling in the forms in advance not one at a time. Then he explained that certain sections needed an umpire's (tutors) signature (where negotiations had taken place eg. for pay rises, bulk buying, government tenders). T hinted that they should be aiming to secure a quarter of the market (there were 4 teams) and that any contract sales (eg. to government) should be priced about 20% below the market price.

He explained the industrial relations form to them "the dreaded IR" and assured them that IR is very real in this game "ignore it at your peril", urging them to negotiate regularly and to be fairly generous in their negotiations.

Finally he announced "the creme de la creme, Finance" (according to T). He explained that they had assets of £100,000 in the form of the factory and £40,000 cash, but this would not be enough and they would need to raise more. They will need a bank loan and this will be a high interest and short term loan because they are an infant company and therefore suspect. They would need to present a convincing case ie. solid financial predictions in order to persuade the Bank manager (S) that they were credit-worthy. He added they might like to guess at how much they could reasonably expect to be loaned? Several students correctly said £70,000 which was half of the company's assets.
T reminded them that information was for sale from the tutors, and that also they would be putting up information around the room - so they should be sure to look at it (this took the form of press releases, economic predictions etc). In addition, the computer would produce information periodically about sales and production, balance sheets and profit and loss. He added that computerising the game had good and bad points; it frees the tutors from calculations so they can be negotiating, plus they are able to include more variables in a computerised game. However, the disadvantage is the number and complexity of the forms so please, he added do not be afraid to ask if you are having difficulties. There were no questions. This part of the introduction had taken 30 minutes.

S announced teams and respective members. He added that they should make up a name for their company (they were confined to the first letter being A,B,C or D depending on which group they were in). They would have their functional (specialist) briefings in one hour, and in the meantime they could go for coffee and then get on with planning their strategy.

6.32 Introductory planning session

I joined a group at random after coffee. They were not all back from coffee after 30 minutes, but those that were discussed half heartedly what to call the company. After 40 minutes the whole group were present. Eventually they decided to call the company 'Crackers'. They then discussed who would adopt the various roles/departments ie, finance, industrial relations, marketing, production, chairperson. After much prevaricating they decided that two people would share finance and marketing and the other functions would be run by one person. They then changed places so that they sat next to relevant partners.

The production lady asked who had studied the game handout, no one had looked at it closely. The chairperson (who was also running finance) suggested they each study their own relevant
section and then they could make suggestions for working out a strategy. He did not want to do anything too dramatic, in contrast to the last game. (They had played a business game at the beginning of the course - some students had got a little carried away and went spectacularly bankrupt). The others agreed and Finance 2 added that it was important to have a good cash flow.

At this point it was time for the functional (specialist) briefings and the students went to their respective rooms. I stayed in the same room for the finance briefing run by S.

6.33 The introduction part 2

S handed out forms to the students and gave instructions on how to fill them in. He added that it was important to be on top of the task; that they needed coherent plans for loans, cash flow forecasts etc. just as in real life. "Timing is important in this game and we force you to plan. If you give me short notice for a loan I may not be able to lend it to you or I will charge you more for it. Just like real life". He stressed a few more times the need to plan ahead. He warned them that the usual reason for running out of money was because colleagues do not tell you what they are doing, especially IR.

S explained that they would not be able to get long term loans until after the 8th quarter (decision period) because they are an infant company and even then the Bank will only give long term loans if the company and its share price is healthy. He gave out more forms and instructions on how to complete them. One form was to produce cash flow predictions manually. Once again S stressed the need to obtain the correct information from their colleagues. He also explained why companies paid dividends to shareholders - to encourage them to keep their shares.

At this point another tutor J arrived, who gave them another file and explained how to get cash flow predictions off the computer. These were important because they impressed the
Bank Manager (S). After a few questions and answers on how to use the computer the students were dismissed for lunch.

6.34 Decision making sessions: The students

i, Teams

There were 28 students divided into 4 teams each containing 7 members. However, not all of the team members were present all of the time. All 4 teams were in the same room. The team I observed had only 6 members on the first day (one had not returned from holiday). I could see the other teams but I could not really hear what they were saying. Several students 'visited' other teams from time to time for general chit-chat as well as for negotiations and occasional friendly rivalry.

ii, Individual contributions

My team lost and gained one member on the second day. The student who left on the second day returned on the third day, but the new member did not return. Thus the team had 6 members throughout. The student who attended on days one and three only spoke twice, he was supposed to be helping with the I.R but did not contribute to it at all. I gathered from his two utterances (about the number of machines they were buying) tut-tuts', sighs and raised eyebrows that he did not agree with the team's strategy. I attempted to talk to him about the game but received non-descript replies such as "Oh it's all right, I suppose" or a shrug of the shoulders.

The other member who did not attend continuously (he was present only for the second day) was actively involved in using the computer to get their cash flow predictions for a bank loan. Unfortunately he took the print-outs home with him on the second day and then failed to return the next day. He was the only one who really understood how to use the computer, and therefore the finance students had to go back to working it out manually.

The other 4 students were actively involved for the whole 3
days but one student (the chairperson) ran the company, filling in all the forms, making most of the decisions and 'chivying' the others into action.

The chairperson was also in charge of the financial aspect of the company. He had to know what the others were doing i.e. how much they were spending in order to keep the accounts straight and to make cash flow predictions for a loan. He realised after the first day that neither the marketing or the IR students were able to work out how much they were spending and decided to overestimate by half as much again all the figures which they gave him. When it eventually became obvious that they could not negotiate very successfully either, he accompanied them (or sent the Production student) to ensure that they reached a satisfactory agreement with the appropriate tutors.

The Marketing student was Dutch and although his English was very good it was not good enough to make up 'snappy' advertisements and slogans for instant mashed potato and he wasted a great deal of time on this. He had trouble in understanding the advice he received from the various tutors (this was often cryptic anyway). He could not work out what was happening in his sales areas eg. whether there were any competitors, how many products his salesmen were selling (or even how many salesmen he had), how price/advertisement sensitive the sales areas were etc. etc. He did not buy any marketing information until the chairperson (after direct instructions from the tutor) made him do so. All in all, he was confused and had little idea about what he was supposed to be doing. When he eventually began buying marketing information and deciphered it with the help of the chairperson he began to understand what the role was about and was able to make a positive contribution to the game. Despite all his problems he remained fairly cheerful throughout the 3 days but confessed to boredom towards the end of the second day.

The I.R student attended for the whole 3 days but she was not very active. She tended to wait for her colleagues to ask for
her completed figures and would then realise she had not even started working on them. She waited for pay demands and strike threats before negotiating in a panic with the tutor, rather than reaching a suitable pay deal before the workforce had become militant. She was not able to work out how much she was paying her workforce and forgot to keep the finance department informed of any changes.

The production student did not really have very much to do except to make sure they had enough machines and raw materials and eventually enough stocks to sell. She never had a problem with stocks because she bought 6 machines at the beginning of the game (because they got a good discount there was no real debate about production levels, economies of scale etc), and based their production figures upon the machines' output. She bought raw materials cheaply in bulk and so ensured production was possible. However the sales force could not keep up so they had rather a lot of stock. She decided that this was not really the production student's problem, so when her calculations were completed she helped the other students with their own. Sometimes she also helped with their negotiations. She said she enjoyed the negotiations because she was good at them! Nevertheless she became bored on the second day and complained that the game was too long. She also said that she did not see why they were playing this game because they played one like it last term. She had enjoyed that because it was 'something different' but the novelty had worn off with this second game.

The final student seemed to be busy helping run the finance department, checking figures and making calculations. However, it is difficult to tell what he actually did apart from selling some surplus stocks to another company and then at a poor price. He was frequently late back from coffee and meal breaks and was often talking to other teams.

iii. Morale

Our team won the game - it was the only team whose share price improved (after an initial downturn) and rose above the
initial price of £1. However, about half way through the game their share price plummeted to a few pence and they became very despondent and began blaming one another. When their share price began to improve again they were complaining of boredom, and were not noticeably cheered. When the final share prices were displayed they were self congratulatory and the chairperson's speech was decidedly smug.

Three members of the group were visibly bored, talking amongst themselves as well as to others, writing cheques, studying the next week's timetable and they complained periodically of boredom. The chairperson was not bored as he was too busy, but became angry from time to time with the others and with the tutors.
The group did not stay together during coffee or lunch breaks and there seemed to be very little 'team spirit'.

iv. Competitive spirit

They were not particularly competitive at the beginning. Their main concern at the start of the game was not to do anything disastrous. They became a little more competitive during the game when they were more successful than the other teams (they smiled and made disparaging remarks to the other teams), but when they were doing poorly they 'kept their heads down' and said little to the others. At the end when they realised they were winning they once again made remarks and displayed friendly rivalry towards the other teams.

v. Coping with the mechanics

The team experienced some problems in completing the decision form, the finance sheet, together with some other calculations. None of them had prepared adequately for the game; most of them had not read all of the game outline, and some had not read it at all. Thus they had not appreciated the complexity of the game or the calculations they needed to have made before deciding on how many goods to produce, salesmen to employ etc. They merely based all the calculations upon the output of the 6 machines that they 'just
happened' to buy.

The forms were completed in a rush by the chairperson because he was busy doing nearly all the planning and calculations and it took so long to reach decisions. The chairperson and the production student made most of the decisions between them and paid polite but slight attention to the other students' suggestions.

6.35 Decision making sessions: The tutors (game administrators)

Most of the tutors were known to the students - they had been teaching them for a term - and they were on first name terms. During the game T spent about half the time acting as the raw materials/machine supplier with whom the students had to negotiate. The other half of the time he spent administering the game; collecting decision sheets, entering data into the computer etc. (he could usually be found in the corridor outside, or in the computer room at the end of the corridor). The other tutors helped with the administration when necessary but were mainly there to play specialist roles and did this for at least 90% of the time. The marketing and I.R tutors were usually available for consultation (at their desks in the main room) when needed, though it was necessary to queue sometimes. S wandered around the room pouncing on teams who were in difficulties or who were likely to need a loan in the near future. He played the role of the Bank manager with relish, hinting at and advising students about where they were going wrong or about extra variables they may not have considered. He prevented my team from becoming bankrupt at the beginning of the game and kept a close eye on their progress. I assume he did this with all the other teams because he also behaved this way during the two other games at which I observed him (PLa and SM).

Once again I kept my involvement and exchanges with the tutors to a minimum because I wanted to inspire confidence in the students.

6.36 The debriefing
The debriefing was held at 2pm, an hour and a half after the last decision was handed in. The students were instructed to go to lunch then to return for the last result and to prepare a report for the Annual General Meeting of the shareholders. They were given a guide to help them prepare the statement (appendix 6.4). He told them that they would have to explain their results, what the company was trying to achieve, how they dealt with problems and what they thought they learned generally. They would have 10 minutes per team and more than one person could speak in each group if they so wished.

The share prices were put on the board as a graph and other figures were put up as well eg. market share. The teams sat at their usual tables, S and T were in the middle of the room, sitting down, whilst other tutors were sitting at the end of the room. T called for the least successful team to present their statements first.

Team A (4th place)

The team spokesperson was obviously nervous, her hands and her voice were shaking and she looked rather unhappy. She said that if it is true that you learn by your mistakes then we must have learned a lot. She said that they had a short term strategy, that although they coped with the day to day running of the company they could not expand because they did not have enough money. They could not borrow at first because they could not produce a cash flow forecast at the beginning, and then, when their predicted profits did not materialise, they had to borrow in order to keep going. Their high interest payments prevented them from making profits and so on. They kept reacting to each crisis as it occurred instead of planning ahead and they were so busy doing this that they eventually had to be rescued by the government. She concluded that their strategy was too short term, but they were so short of time that they could not really see where they were going wrong until the end, by which time it was too late. She said they had learned about controlling the cash flow and the value of preparation at the beginning (ie. read the handout). They did
not find out much about market shares and their competitors because they did not really have time to seek or digest this kind of information.

T pointed out that they had made a very silly mistake early on in buying raw materials and concluded they may have done better if they had not done this.

Team D (3rd place)

Their spokesperson was rather angry and aggressive; he had not agreed with some of the decisions they had made and I heard him quarreling loudly with one of the other team members. He was also angry with the tutors because he could not get the computer to produce their cash flow predictions and he wasted a lot of time on this.

He said they originally tried to get 30% of the market share but had failed to do so. He said their planning was always short term, often just reacting to new problems and results. He added that they lacked co-ordination in all functions, no-one knew what the others were doing, mainly because the group was too big (7), and that they were short of time. They put their salesmen in the wrong areas because the marketing information was all wrong (from the tutors). Their advertising did not work, they could not create accurate cash flow predictions, their salesmen's wages and stockholding costs got completely out of hand, and they did not pay enough attention to the profit and loss account and so they went into deficit. In fact the only area where they did not have problems was IR. They paid almost the average industrial wage and very few workers gave notice. He added they had learned about communication problems but that was all really because they were just reacting to the last set of results all the time.

S stood up and asked the spokesperson why he thought his stock holding costs were a problem? They were only £2000 per quarter and their short term interest on their loan was £15,000 per quarter! He agreed their biggest problem was
servicing their debt, but added that their sales were nowhere near anyone else's. The student said they could not analyse the market at all, they went through it systematically but it did not seem at all logical. The marketing tutor explained that team D seemed to be operating in a vacuum - they did not ask what the other companies were doing and they kept swapping around all the markets and so failed to build up any brand loyalty.

Team B (2nd place)

Their spokesperson said they aimed for a 25% share of the market and achieved 23%. However, they were reacting to short term problems rather than having a definite strategy. They felt they were not in control of the company or the market, and they did not know what the other teams were doing so only guessed at competitive prices and strategies. They did not feel they understood the game until the last decision period but now felt they could do quite well if they could have carried on playing.

The team had got its pricing policy totally wrong and had chronic cash shortages. Their prices were too low and they did not have enough salesmen at the start. They bought 5 machines but only used 3 of them. They could not afford R&D and kept investing in it and then stopping until they decided it was not only too expensive but also too slow. They had few I.R problems (except salesmen left as fast as they were recruited) but the Production and Finance departments in the team ignored the I.R dept. They learned the value of planning and co-ordination.

The team's Production student stood up and said he had wanted to make more goods but the Marketing student would not allow it. The Marketing tutor explained that the marketing student was correct because he did not have a large enough salesforce to sell more goods.

Team C (1st place)
Our chairperson had volunteered to do the presentation. He rationalised their decision to buy 6 machines as an attempt to bring their marginal costs down. They forgot they had to wait 2 periods before they received any payment for goods and had to get a loan. He said that things were going well in periods 3, 4 and 5 but by then they were not paying their workforce enough because of inflation. He admitted that it took them 4 periods to realise they only had 7 salesmen left (from 15) and thus were not selling many goods. They needed a radical strategy to get cash fast as well as more salesmen, and to overcome the very poor I.R. He said "We probably panicked and sold a lot of stock at a very low price for C.O.D and got 7 salesmen from an agency".

Eventually they worked out that finance had to be kept informed, the workers had to be kept happy and the importance of buying marketing information. He did not think the advertising campaign was worth either the time or the effort. They had learned about co-ordination, where to cut costs and where to spend ie. I.R and marketing information.

The 'specialist' tutors then took turns to give their views on the students' performances.

I.R tutor

She said the students approach to I.R was inconsistent and reactive rather than proactive ie. they waited for problems to arise rather than preventing them. This was fairly typical of British I.R. They did not bother to explain to the workforce any changes in productivity. Sometimes they wanted as much overtime as possible, whilst at other times they would want to cut production to a minimum, all without consulting the workforce. Then when the workforce began to get resentful they would make over generous offers at the last minute. Of course the workforce will expect large rises next time. In addition, none of the companies bothered to find out from each other what the going wage rate was but merely asked the
tutors, who were, at that time, acting in the role of shop stewards and who of course gave over generous answers. Finally their negotiations were not very good, and they should have been more coherent and consistent in their offers of rises and overtime payments.

Marketing tutor

He suggested that some of the teams may have been happier with the results if they had set more achievable objectives. Marketing is very important in setting objectives, and they should have formulated a strategy, worked out their market potential and tried to achieve this over 3 years (12 decision periods). Instead teams did not forecast, but they were just selling rather than marketing.

Some teams entered new markets one period and left in the next and then returned later. Unfortunately, the public has a long memory and does not forgive such behaviour. In addition they did not consider the opposition and what they might be doing. They did not promote their goods very successfully and did not spend enough on advertising. Their pricing was completely wrong, being artificially low, and in fact well below the market price. They were also selling goods at the same price in all markets, which was also wrong. Finally, he added that R&D is something undertaken gradually; something to be carefully planned not bought in a panic at the last minute.

Finance tutor

S was still in the role of Bank manager and for a time was advising shareholders which companies they should invest in. He said they should stick with team A (4th place) because it was going to do better. He added that share prices are influenced by profits and also by dividends, but that it was too early to be paying dividends. All the companies should be fairly happy because they were all improving, and even team D had managed to control its decline despite its meagre objectives and low turnover.
He then explained how much they had been spending on production/selling costs compared to how much profit they were making. Generally they were spending far too much on interest payments to be making any sensible profits and their prices were too low. S said the only person who was getting rich from these companies was the Bank manager. He added that running a business is not like a race since survival is important and not just winning.

There were some extra questions and points. Two students felt they did not have enough time to make decisions. One added that in the end you just guess because you do not have enough information. Also the lack of time means you cannot plan a long term strategy. T replied that shortage of time is a factor in the real world. He has tried giving people longer but there was no corresponding improvement in their decisions or performance. He added that they could have stayed on longer in the evenings if they had wanted to. However he thought that reflection in the middle of the game may have been helpful. One other student complained that the computer forecast was either not working or was not accurate. T acknowledged this and said he was working on improving it. When these questions had come to an end the students were dismissed, the debriefing took one hour and 25 minutes.

6.4 Informal discussion with and among game participants

The teams did not remain together during coffee and lunch breaks but I did talk to some other team members at these times. Very few students were enjoying the game. They generally thought it was quite good but it was too similar and too soon after the one they played at the beginning of the year. Many of them complained of boredom and frustration. Most of the boredom was caused by the length of the game (3 days) and because they 'had done it all before'. The frustration resulted from not understanding how the various factors interacted in the game as once again they could not work out cause and effect.
Whilst the decision sheets were being processed there was usually a delay of 15-30 minutes. During these times some members of my team debated their strategy or checked calculations, but usually the majority of the group talked about other things - holidays, next term's work, where they were going that evening and so on. They also complained frequently of being bored.

6.5 Tutors comments

I interviewed the game administrator T prior to the game and he also completed an open ended questionnaire. He designed the game himself and it has been used on this course for several years. The game is available commercially.

Throughout the game he was cheerful and seemed fairly happy with the teams and their performances. Just before the debriefing I was able to ask him how successful he thought it had been. He replied that these DMS students never did very well at the game and so I should come and watch it played with some managers in a few weeks time. I agreed and asked him why these students did not do very well at the game. He thought it was a combination of their lack of commitment, experience and ability.

6.51 Tutors questionnaire response

At the interview I gave T an open ended questionnaire (appendix 2) about the game, which he completed and returned after the game. The questionnaire was designed to find out why tutors use games and whether the competitive element in the game is important, as well as how they expect the students to approach games and simulations, what the students may learn from this specific game and what drawbacks there may be in it.

T uses games as a teaching device within management courses. He expects the students to learn in two ways from this game:

1. Functional learning; eg. marketing, costing, cash flow forecasting, negotiation skills
2. Integrated learning; eg. inter-relationship of functions within the organisation

(please see appendix 6.5 for a fuller version of his objectives)

He also expects the students to develop skills in negotiation and in working under pressure. The competitive element of the game is important to T "because the game attempts to simulate a particular industry which is itself highly competitive, and I am conscious that teams play against each other and not against an abstract computer model".

He expects and usually gets total commitment from the students once the game is underway, "occasionally spilling over into aggression (but thankfully not too often)". The main drawback to the game is its complexity and range of decisions which often give rise to time problems. There was no formal assessment of the students performance - it is seen as part of the teaching on the course.

T's objectives for using the game were made explicit to the students in the game handout (if they had read it) and were reiterated briefly in the game introduction. He had also stressed that the main objective of the students should be to learn from the game, and that winning was only of secondary importance.

6.6 Questionnaire results

6.6.1 Administration of Questionnaires

I distributed questionnaires (appendix 6.6) to all the teams after the debriefing but not all the students took them. The questionnaires asked what the students expected to learn from the game, how far T's learning objectives were met and whether the competitive nature of the game was helpful or harmful to their learning. I also asked what factors they considered when deciding their strategy, and what was most and least
useful about the game. Finally I asked if there was anything they would like to add.

I instructed the students to hand their questionnaires into the departmental office, from where they would be sent on to me. I stressed that their replies would be kept in strict confidence. I received 8 replies out of 25 and a written reminder did not produce any more. I also arranged 5 interviews with students but only 2 students actually turned up.

6.62 Analysis of questionnaires

i Expectations and learning

Two students stated they had no special expectations. Another 2 thought they would learn various aspects of how to set up a company and deal with the problems of running it. Two more students expected to learn about co-ordination and communication with others. The remainder of the students' expectations were that they would learn about planning, negotiations, finance/accounts, integration of functions and departments. In addition they expected to gain experience of managing a company and have a chance to apply theory to practice.

Their actual learning is fragmented and often qualified by: "we could have done more, but". Four students state some kind of learning about interrelations between departments (one of T's main objectives). One student learned about company finance methods, another about influences upon pricing policy. Others state they learned about teamwork(2), marketing(1), other people(1), oneself(1), decision making(1), or communication problems(1). Finally one student said despite his team's poor performance they gained a great deal from playing the game.

ii Feelings

Only one student thoroughly enjoyed the game, whilst another
enjoyed it, but had some reservations. Five students were not so enamoured; one felt it was a chore at times (covering the same ground as last time), another said the group was demoralised by their decline and confusion, and finally one felt that constant personality clashes were unhelpful to his learning.

iii Strategy

Seven students say their initial strategy was based upon real life considerations. Only one stated that they wanted to win. One believed they had no strategy due to lack of time, another said they did not plan enough and a third said they reacted to problems as they arose.

iv Evaluation

The majority of the students thought it was a useful game (8). They thought it was good for group work (2), negotiations (1), decision making (1), and case study analysis (1). One said it was a good 'getting to know you' exercise, another that it was good practice for the real world. Three students criticised it; for lack of planning time (1), insufficient instructions at the beginning (1), and for it's limitations (1).

v Competition

Seven students found competition helpful for various reasons, some because it reflects reality (4), it gets everyone involved (1), for the learning process (1) and to review and plan for the future (1). Four students thought it was harmful because it disintegrated objectives and strategies (1), and also because it prevented 'cold' learning - where they were doing something for the first time (1). Finally one student said some people lost interest when they knew they were losing. Other students stated it would have been helpful if the group was more structured and co-ordinated (1) and that sometimes more is learned from pooling ideas rather than
competing(1) finally one student thought it was neither helpful nor harmful but just more fun.

6.7 My evaluation of the students performance

The students were distinctly unmotivated, mainly because they had played a similar game a term before. Also it was the beginning of the Spring term and they had not really 'settled down' after Christmas.

I think that T was correct in his presumption that the students would not do very well because of their lack of ability and motivation. I witnessed both - several of my team were not very capable ie. they could not do the calculations, did not remember how to do things they were taught last term and could not foresee problems arising. Several members of the team also put in very little effort. I think this is probably also representative of the other teams. Some teams suffered personality clashes which they were unable to resolve.

The majority of students report that they approached the game as a learning device and several report learning relevant and worthwhile things. Others were confused or negative about their experiences and learning.

They were fairly competitive, but most took real life considerations into account initially. Later they began reacting to past results. They were also competitive within the teams, they complained of personality clashes and I saw several arguments develop. Some students were no longer speaking to each other by the end of the game.

6.8 My evaluation of the game

This is one of the best business games I have observed. The pre-game handout (though rather long and complicated), the introduction, the scope for interaction between tutors and students and the debriefing were excellent. So was the advice and assistance proffered by the tutors.
The only reservations I have are:

1. The game was too complex and advanced for these particular students

2. The students played this too soon after the last game

3. In general I believe that a 3 day game is too long to sustain interest and effort

4. Sometimes decision results took too long to arrive.

6.9 Conclusions

I began this study with 4 areas to focus upon

1. What are the effects of competition upon learning?
2. How do students approach games and simulations?
3. How does their approach affect their decisions/behaviour?
4. How can game administrators affect students' approaches and decisions/behaviour?

I shall describe my findings in each area:
The effects of competition upon learning during this game as voiced by the students, were that it "disintegrated objectives and strategies" ie, when results were poor they changed their strategies. In addition, they said there was little time to think about what to do, especially when learning something for the first time, or for developing skills. They also commented that some people gave up trying when losing.

My observation revealed that students were taking guesses and gambles in an attempt to win. There were several personality clashes over which strategy to adopt. Some students became frustrated when doing poorly, though they did not all give up trying. Some commented that it was not very rewarding to learn through mistakes all the time. It must also be added that several students found the competitive element helpful because they felt it reflects reality and also because they
felt it helps to get people more involved.

My second area of interest i.e. how do students approach games and simulations revealed that once again students seemed to adopt several different approaches. Though more analysis was needed to be certain, I felt I could identify five different approaches to games. These were:

1. Competitive - those students who want to win and who play the game as a game.

2. Learning - those students who want to learn from the game and play it 'seriously'.

3. Skill specific - students who want to learn specific skills or facts from the game.

4. Rhino - Really Here In Name Only - those students who 'opt out' either physically or mentally.

5. Confused - those students who could not cope with the mechanics or concepts involved in the game.

These descriptions were tentative and needed more investigation to be sure they were present and also to find out more details about them.

My third area of interest was how does their approach affect their decisions/behaviour? From observation and some feedback sheets I felt I could tentatively describe certain aspects of the different approaches.

1. Competitive - these students paid scant regard to common sense, real life, theories or past coursework when making decisions. Instead they seemed to guess and gamble. Each poor result was often the signal to change strategies yet again, with the result that they became confused and, when losing, apathetic or frustrated.

2. Learning - these students utilised their knowledge of
the subject and took real life into consideration in order to submit coherent, rational decisions. Providing they did not fall into the 'competitive trap', when results were poor they were usually able to understand the underlying concepts of the game and to maintain morale.

3. Skill specific - these students adopted appropriate roles in order to learn the skills they desired eg. negotiations, finance, chairperson.

4. Rhino - these students 'left' the game very early on (either physically or mentally). At this stage it is difficult to explain why because these students do not wish to discuss their reasons, neither do they respond to questionnaires. However, I shall attempt to investigate this approach in future games.

5. Confused - these students seemed to fall into two categories, those who took a conservative approach and did very little initially to see what would happen, and those who took a competitive approach. Once again it was difficult to pin down these students to find out more details, and thus I resolved to follow this up in future studies.

My next area of interest was how can game administrators affect students' approaches etc? This game had a very long and comprehensive briefing period (a whole morning) which seemed to make many students (though not all) aware that the game was a serious learning task. In addition, the tutors were not only available for consultation, but some of them actively sought out problems and gave students advice on how to resolve them. This activity by tutors helped the students to avoid potential confusion and frustration.

The debriefing was also comprehensive, not only were all the teams allowed to contribute, but also all the 'specialist' tutors made detailed comments about each team. Many misunderstandings were cleared up during this session and the
students report that they found it very valuable.

However despite considerable tutor involvement and advice students still made mistakes, some were competitive and they were on the whole poorly motivated.

In addition, it does seem from my observations and feedback sheets that the students' approach to this game was influenced by their experience of the last game they had played. It led our team to be cautious initially because they had made rash decisions and done poorly in the last game. It also affected the students' motivation; they became bored with the game early on because it was similar to the last one. This may account for the high number of 'drop outs' from the game. It may also explain the poor response to my questionnaire.

Résumé

During this case study I have identified 5 different student approaches to games. I decided to analyse my data from earlier studies to see if these approaches were present there. I also resolved to investigate these approaches during future case studies.

I decided at the beginning of this study to combine my first two original hypotheses ie. that competition is harmful to learning and that losers learn more than winners, into the general question 'what are the effects of competition upon learning?' because I believed that the first hypothesis had been shown to apply to all the previous games but that the second was not so easy to answer because the relationship was so complex. I decided it would be more useful (to practitioners) to offer a wider interpretation and description of the effects of competition rather than concentrating on whether winners or losers learned most.

Once again I found that competition was harmful to learning for this group of students. Also 'losers' became apathetic and frustrated and felt it was not a very enjoyable way to learn.
It does appear from this game that different student approaches lead to different decisions, strategies and behaviour and I would tentatively suggest, different levels of learning. I decided to look more closely at this in future studies and also to re-examine previous data in the light of these findings.

It did seem that tutor involvement in this game had helped students and had possibly affected their approach. Some of the ways in which this was done were - comprehensive briefing and debriefing and active tutor involvement during the game. Once again I wanted to continue investigating these factors in future games.
7.0 Preamble

I observed the same game (PLa) two weeks later at the same establishment but played by practising managers. I did not really have much time to digest the results from the last game before I observed this one. Therefore I kept the same areas of focus in mind ie.1. to 4. (see PLa 6.0) and also concentrated upon developing a broader picture of the 5 approaches ie. Competitive, Learning, Skill specific, Rhino and confused that I had identified in PLa.

During this game I observed the vast majority of students taking a learning approach towards the game. This contrasted greatly with my previous observations of games and led me to investigate alternative factors which may cause this phenomenon.

7.1 Introduction: general background

Please see section 6.1 which describes how I became involved in this game. This was the second time I observed the game (the first was about 2 weeks before).

7.11 Outline of game

Again please refer to section 6.11 this group of students had the same task and instructions as the previous group.

7.2 Context

This was the second time I had observed the game being played, this time with 'middle' managers from a large company who were on a two week course. The game was administered by the same tutor, in the same building. There were 20 students, only 2 were female and their ages ranged from early 20's to late 40's. Most of the students had 'worked their way up' into middle management, only one or two had degrees and had entered directly into management. They were from all areas of England, and many had never met each other before the course started. They were all present and working by 9am. Although
T (the game designer) was present for most of the game he did not play such a prominent role this time. The course leader (W) conducted the introduction and was in charge of the whole proceedings. He was assisted by several other tutors including T and S (who again played the Bank manager's role) who acted as consultants, advisors and negotiators. The tutors were present for most of the time, and they had all helped to run the game before. The entire game took place in one room except for the 'specialist' introductory sessions i.e. marketing, finance, industrial relations (I.R) and production - they took place in separate rooms with the specialist tutors.

I was present throughout, sitting among the students for the introduction and with one team for the decision making sessions and the debriefing. I introduced myself at the beginning saying I was a research student, studying games and simulations and that I would like to sit with one team and talk to some of the others over meals and in the bar. I also told them that I would be distributing a questionnaire at the end and that whatever they told me was strictly confidential.

7.3 Observation of the game

The students had already been divided into 4 teams the day before, and had been instructed to decide upon a name for the company and to discuss their strategy. W began the session by explaining that they were in the process of making a video film of the game introduction and so he was going to read the script to them to 'try it out'. He added that he was not happy about reading other people's instructions out loud so could they please bear this in mind.

W said the game was about teamwork, decision making and finding out about how the various aspects of a business interrelate. He added that the team should work together towards the same objectives which should be to make healthy profits and increase the share price. He advised the team members not to play the same role in the game as they do in real life, because he wanted them to appreciate the
difficulties faced by other departments and to realise how all
the parts of a business are interdependent. He wanted them to
get a complete picture of how a business is run.

He then ran through the forms they had to fill out and
reminded them of some of the details they were likely to
forget eg. machine maintenance, the seasonal nature of the raw
materials, the delay in payments received and recruitment. He
then explained that their sales were never constant, they
could be increased by marketing ie. more advertisements and
salesmen, price, improved products etc. Prior market research
is very important, all the 5 markets are different and they
need information about them before deciding where to sell and
at what price. He added they could also sell to other
companies and that there would be contract sales to bid for
eg. for the government. These needed to be negotiated with
the tutors and must be accompanied by a signature in ink.

They could also have special promotions, advertising campaigns
etc. which also had to be agreed by the tutors. W reminded
them that they were giving 6 months credit to their customers
though contract sales could be cash on delivery. Adverts and
marketing were paid for immediately.

W explained that Industrial Relations (IR) may look like a
small part of the game but they were not really, except for
the first year. Pay rises had to be negotiated with one of
the tutors who would play the role of TU representative. He
warned them that they may run out of real time, so they must
think ahead. In addition, they must consult finance to see
what pay deals the company could afford before negotiating.

The students who were running the finances of the company were
reminded that, though they have some capital, they will
probably need more and so will have to negotiate with S for a
loan, W recommended that 2 students ran the finance
department. He added that he could not stress too strongly
the need for financial planning and forecasts, especially if
they were to get a bank loan at a good interest rate. If they
ran out of money and needed an emergency loan it would be very
When they were making profits and had some spare cash they could invest it and receive interest, and when the bank is confident in their abilities it may grant them long term loans at lower interest rates. In addition they could pay a dividend to their shareholders when they were making healthy profits (this also raises the share price).

W also explained that it was important to analyse the computer print outs and accounts to check how much money they had and their staff numbers, salaries etc. The staff would give notice and leave 2 periods later - so they must plan ahead to keep the workforce up to strength. He added that there were a few anomalies in the game which they would discover, but these emphasise certain learning points so would they please bear with them on these. He added that apart from these few anomalies the model represents reality pretty well.

Finally they were instructed to invent a name if they had not already done so, have coffee and be back by 11am to attend the specialist briefings. Unfortunately the IR tutor was not available until 6pm so this briefing had to wait until then. After the briefings they were to return to make the first 3 decisions.

7.31 Introductory planning session

My team had already allocated roles the night before and had decided to call the company POMASH! They debated their strategy for 20 minutes, reached no conclusion and went down for coffee. When they returned they resumed their debate.

They argued about their long term objectives - two of the team wanted to diversify their production eventually. Another team member pointed out that there was no scope within the game to produce anything but mashed potato. They then debated the necessity of research and development (R&D) and could not
agree whether it was worth doing. The longest debate was about the size of the market share they should be aiming for. One student wanted to get rid of the other teams and have a monopoly or at least 80% of the market. He was dissuaded by the others, who felt that aiming for about 20% of the market was more realistic and attainable. There was also a short discussion about following a high price, small market strategy, like Rolls Royce, which was rejected. They then debated how much return on investment a company would expect to make in three and a half years in business (the length of time the game simulated) in real life. The conclusion was "not very much" so they felt it was not worth the risk in real life. They finally agreed to aim for 3% growth each year. It was then time to go to the specialist briefings. I decided to go to the marketing briefing run by W.

7.32 The introduction part 2

W explained how to fill in the forms and reminded them that there would be delays in recruiting labour and receiving cash. W related much of what he said to real life. He stressed that advertising was very important. He then stressed that market research is not cheap, and that therefore they should come to him in his capacity as head of sales in their company for advice before buying.

He explained that they were not competing with the tutors or the computer model, but only with each other. The tutors were not here to 'trip them up' and therefore they should come to them for help when they needed it. He advised them to look at the notice boards around the room for free advice on the economy, sales and general news. Finally, in real life companies can see how much their competitors are charging - in the game, he hinted, there were other ways of finding out this information.

There were several questions about the mechanics, form filling etc. When these were answered they were dismissed and told that lunch would be ready shortly.
7.33 Decision making sessions: The students

i. Teams

There were 20 students divided into 4 teams each containing 5 members. All the students were present throughout. All the teams started in the same room but one team retired to another smaller room, as they could not concentrate because of the noise. I could see the other 2 teams but could not hear them. Some of the students visited 'rival' teams from time to time for negotiations. Apart from this and some friendly rivalry there was very little conversation between teams.

ii. Individual contributions

All the team members were present throughout and they all worked continuously on their 'departments'. There was considerable disagreement and friction between three of the team members which added to the confusion and resulted in silly mistakes being made.

The personnel student had the least to do. He decided early on to pre-empt any strikes and stoppages by offering reasonable pay increases and productivity deals before they were asked for. He was very conscious that the others were making decisions without consulting or considering him. He complained to me several times that he was left out of it and now understood how his personnel director at work felt.

The marketing student concentrated on his specific role. He did not dictate policies, but suggested some and was not too concerned if they were ignored. He happily worked out any calculations, projections etc. that he was asked for by the others and then returned to his advertising campaign. He was allowed a free rein in this area and he seemed to be enjoying himself - drawing and colouring in adverts and making up slogans. When he had a new advertisement he would disappear for a while and on his return would tell them they had extra points from the tutors (to whom he had been 'selling' his ideas) for his new advert.
The production student was very cool and calm - even when he bought six machines by accident! He did not seem to be very forceful but was extremely good at getting his own way. He managed to sound as if he knew exactly what they should be doing, and put his ideas over in such a plausible and knowledgeable way that they were often accepted. He was also very neat and paid a great deal of attention to detail. He spent at least half an hour labelling and colour coding the edges of all the various forms so that they would be able to find them quickly. The other students were rather bemused by this behaviour.

The two finance students disagreed with the production student and each other. One was very forceful (N) and had great credence with the other students (he had a degree and was generally accepted as a clever chap). He did not personally like the other finance student and had christened him Biggles - much to everyone else's amusement. Biggles was not amused, but was generally unpopular and the nickname had stuck.

Throughout the game Biggles and N argued with each other over most policy decisions. Biggles made several mistakes (not always his fault) and they had to borrow heavily from the bank. N did not trust Biggles to get the calculations right and, instead of double checking them, continued to criticise and annoy him. Whilst they were wasting time the production student quietly filled in the decision sheets himself using his own strategy.

iii. Morale

They became bored when they were not doing very well, especially when they had made a mistake. The personnel student was frequently bored and so was N. N did very little negotiating and was sharing the finance role and therefore had little to do. The production and marketing students were fairly happy throughout, only complaining when the game carried on into the evening.
The group did not stay together during coffee or lunch breaks, there seemed to be some 'team spirit' but not much.

iv. Competitive spirit

They were not particularly competitive at the start, though they did want a large share of the market. This was however tempered by the desire to set objectives that they could reasonably meet. They made the usual friendly competitive remarks to the other teams but were not very serious about trying to win.

v. Coping with the mechanics

They had some difficulties filling in the decision form and made some careless mistakes. The finance student (Biggles) had difficulty with the calculations (often this was caused by lack of information from the other students) and he frequently miscalculated their profit and losses. They had all read the game handout prior to the game and seemed to understand what they were supposed to be doing. They were not afraid to ask for help when they needed it and the tutors offered advice when they thought it was needed. There were frequent arguments over their decisions, but the production student began filling in the decision forms well in advance (and often to his own strategy) and thus there was not usually a rush to get them in on time.

7.34 Decision making sessions: The tutors (game administrators)

Most of the tutors had lectured to the students over their two week course and they were on first name terms. Please see section 6.35 for a description of the tutors' activities. The main differences for this game were that W was in charge and played a very active role administrating and acting as the marketing tutor. T and S were also present and acted in the same manner and capacity as the previous game. The IR tutor was a different lady and was not always present. She had some teaching commitments during the game, but she was present for
about 75% of the time.

7.35 The debriefing

The debriefing was held at 11.30am, half an hour after the last decision was handed in. In this half hour they had a coffee break and had prepared a report for the Annual General Meeting of the shareholders. They were given a guide to help them prepare the statement (appendix 6.4) and told that they would have to explain their results, what the company was trying to achieve, how they dealt with problems, and what they think they learned generally. They would have 10 minutes per team.

The share prices were put on the board as a graph (amid cheering and booing) and other figures were displayed eg. market share. The teams sat at their usual tables, S, W and T were at the front of the room and the I.R lady was sitting at her usual place preparing OHP's for her debriefing. W called for the least successful team (my team) to present their statements first.

Team P (4th place)

Biggles was coerced into being team representative. He had not really prepared a statement and was not very happy. He explained the silly mistakes they had made - running out of money, buying 6 machines when they did not want any, and then explained what they did to rectify them. He pointed out that their share price was on an upward turn now and said they would be a healthy company in 12 months time. W asked them why they had not paid a dividend to their shareholders? This was because they did not have enough cash. There were no further questions. They had learned how many pitfalls there were in business and how difficult it was to get out of them.

Team R (3rd place)

The team representative explained they had started too
modestly and then they had money problems. They improved as they went along and got much better as they began to understand what they should be doing. W asked them why the shareholders should invest in the company. The representative replied that their earlier problems had arisen because they did not have enough stock, but this would not happen again. W quipped "In other words you underproduced". There were no questions. They had learned about teamwork.

Team F (2nd place)

Their team representative was the 'life and soul' student. He stood up to speak among cheers and jeers. He explained their objective had been to capture 25% of the market, and they had succeeded in getting 20%. He added that they had already paid a dividend of 10% to their shareholders and were planning to expand. They were going to invest in more machines and staff and were increasing their marketing. He ended by urging them to invest in their company. S stood up and smilingly reminded them that their sales were the lowest! Laughter. The representative argued that they had shown a good return on investment. S countered by saying they had "missed the bus". The representative had to agree. One of the students asked how to calculate the size of the market. The team had learned how a business works and not to underestimate accountants.

Team E (1st place)

Their representative was the oldest member of the course. This team had gone to work in another room at his insistence. He explained that their objective had been to capture 30% of the market, and they got 27%. He said they had a good return on investment and a healthy share price. They had started conservatively, testing the way the variables worked, feeling it was better to learn to walk before they tried running. The company was very well run, their stock, production, cash and I.R were in hand throughout and would continue to be so in the future. The company was about to pay a dividend of 15% - it was not paid before because they wanted to retain the money in the company. W congratulated them on doing so well, adding it
compared favourably with last years results. The team representative added that they learned how difficult it is to play certain roles, as well as how important good information on marketing and cash flow is, and the necessity of good communications between team members. The 'specialist' tutors then took turns to give their views on the students' performances.

I.R tutor

She said that the teams were pro-active rather than re-active ie. they tried to anticipate problems and to prevent them developing rather than sorting out the mess later. This was a refreshing change. She explained how I.R problems could have disrupted their cash flow planning and production had they let them develop. However no-one made any long term productivity deals. This was a mistake because it saved time on negotiations, and it may have saved them money because inflation was rising faster than the Retail Price Index forecasts. In addition, only one company had a bonus scheme for its workers.

She displayed an OHP to show how much each company had paid their workers, overtime, salesmens' salaries, commission and productivity. She said that they paid their workers well but forgot about their salesmen. They only reacted to salesmens' pay when their productivity went down. There were some questions about calculating salesmens' wages, productivity and commission. She then described what each team had done and what they should have done. There were questions and comments from the teams. She added they had done well to keep their productivity steady because the workers like to know where they are in terms of hours and pay. However they should have taken more initiative on negotiations as she often had to go looking for them in order to discuss things.

Finance tutor

He began by congratulating them all on having share prices of more than £1 (the starting price), and told them about the
previous game's (PLa) final share prices where only one team's share price was above £1. However, he added that they would have been more successful if they had borrowed money more economically ie. long term loans rather than factoring. There were some comments from the students regarding the complicated calculations and negotiations necessary for a loan versus the ease of factoring. S went on to explain that capital was only used properly in a couple of teams. Teams E and F borrowed heavily but did not use their capital wisely. He congratulated teams E and F on paying or planning to pay a dividend to the shareholders, and added that team P should have paid a 5% dividend but that team R were in no position to pay one at all. He also displayed an OHP of the teams' 'operating ratios' ie. how much interest/borrowing they have in relation to the other assets in the company. Finally he put up an OHP of the previous game's results (PLa) where everyone made a loss except one team. There was laughter etc. and my team were visibly cheered.

Marketing tutor

W displayed an OHP of the teams' expenditure on advertising and their sales figures. He said that overall the sales figures were very good, and that in fact they had exceeded the predicted market potential by having sensible prices and using aggressive selling techniques. However he felt that the advertising campaigns were not as good as some previous years - for instance there were no catchy jingles sung to the tutors and no-one had thought to introduce a competition to help sell goods.

To sum up, W felt they could do the necessary mathematics but their communications among each other were poor, there was a lot of squabbling and laying blame within teams. He also thought they should have spent more on R&D. Some students interrupted, saying it was too expensive, but W argued that they would have got the money back from increased sales. One of the students criticised the lack of time they were given to make decisions (45 minutes to one hour). W countered this by saying they had tried giving people longer but, as most of the
decisions were made in the last 10 minutes anyway, it did not really affect the quality of the decisions or people's understanding of them.

7.4 Informal discussion with and among game participants

Most of the team remained together during coffee but not lunch or dinner. It was a residential course and I stayed overnight for the two games evenings. I talked with my team during coffee and several other students at meal times and in the bar.

Most of the students enjoyed the game. They thought it was well run and was a useful way of practicing the things they had been taught on the course. They did not have many complaints about the game but several about their fellow team-mates.

Some students would have preferred more time to make decisions. One or two felt the tutors were trying to 'trip them up', especially S (I am sure he was not, it was just the way he played his role as bank manager). One student confessed to being unhappy about negotiating with the I.R tutor. "It's not a woman's job to negotiate pay rises", he said, and admitted that he was in such a rush to get away from her that he usually agreed to her demands!

There were many complaints about their fellow team-mates. This was the second week of the course, they were getting fed up with each other and several students disliked each other anyway. They had been put into teams by W who had decided who should be where, on the basis of individuals temperament and personality. My own observation was that he split the 'awkward customers' up and put one in each team where they dominated (or tried to) the others. Many students blamed the others for wrong decisions/strategies, mistakes on the forms and mistakes in the calculations. Several students said they could have done better on their own.

Interestingly most of the students believed they were being
assessed by the tutors during the game and that some kind of report would be sent to the company. Several of them said: "What would be the point of doing the course if the company was not getting any feedback?". This was not the case at all as there was no assessment made by the tutors what so ever. It may help to explain why some students wanted to 'shine' and why most were anxious not to be seen to do too badly at the game.

7.5 Tutors comments

I interviewed the game designer T prior to the earlier game (PLa) and received his completed open-ended questionnaire (see section 6.51). However I did not interview W (the course leader) but I did speak to him during the game and he also completed an open-ended questionnaire.

Throughout the game he was cheerful, if a little harassed, over administrative details (not just for the game but arranging meals etc. for the residential course). He seemed happy with the teams and their performance. I asked him over breakfast (away from the students - they stayed in a hotel, we stayed in the Polytechnic) if he was happy with the students' performances and he was reasonably satisfied. He said that this company's students always tried hard and usually did fairly well but their company's (real life) way of doing business was so ingrained that they usually replicated it in the game. Therefore they never did spectacularly well because they usually followed a safe well-trodden, but not particularly profitable, strategy.

7.51 Tutors questionnaire response

I gave W an open ended questionnaire (appendix 2) during the game, which he completed and returned after the game. W uses games because they give a much broader view of management problems than subject lectures do. They also give the students an opportunity to work WITH rather than against their colleagues. In addition;
"they highlight problems we all know to exist - but do not care to admit to".

He expects the students to learn:

"Broad: communication has to be created it will not happen
: your discipline is very narrow

Specific: identify personal strengths and weaknesses
: confirms interests
: suggests new interests
: confirms abilities and skills or otherwise"

In addition he expects the students to achieve a feeling of success: "A good game gives everyone this opportunity - even if they have had major problems".

W felt that the competitive element was a motivator to students, but must not be allowed to take over or become mechanical, as otherwise a feeling of frustration will develop. He expected the students to develop a unified approach to teamwork, and to have a high level of commitment to the game which would grow stronger.

The main drawbacks to the game were

a. It is weak on the production side since this is where the author has least experience.
b. Some of the balances (of the variables) have now altered and the author is reluctant to respond.
c. Advertising costs are now a major factor (in the price of the goods in real life).

W's objectives for using the game were made explicit to the students in his introduction and in the game handout.

7.6 Questionnaire results
7.61 Administration of questionnaires

I distributed questionnaires (appendix 7.1) to all the students after the debriefing. The questionnaires asked what the students expected to learn from the game, how far T's learning objectives were met and whether the competitive nature of the game was helpful or harmful to their learning. I also asked what factors they considered when deciding their strategy and what was most useful about the game. Finally I asked if there was anything they would like to add.

I instructed the students to return the questionnaires in the 'freepost' envelope provided, and I stressed that their replies would be kept in the strictest confidence. I received 10 replies out of 20. It was not possible to send out reminders.

7.62 Analysis of questionnaires

i Learning

The students expected to learn about:
Running a business in general (5), or about setting up a business (2), and about the pitfalls in business (2). Others thought they would learn about teamwork (2) or they would increase their knowledge of the functions and interrelations of departments in a company (2). Two students thought they would be able to link the course and their understanding of it to running a business. There were other miscellaneous expectations ie. negotiations, decision making, setting objectives, finance, personnel, sales.

They report learning the following: two students believed they knew more than they started with or expected after the game. One felt he now had a better appreciation of other departments' problems. Others learned about cash flow (2), the importance of accurate information (2), budgeting(1), Industrial Relations(1), marketing (1), or interrelations between departments (2). However 3 students report they did
not learn very much, two complained about the lack of time to make decisions, and one student was not happy about the quality of the feedback and advice.

ii Evaluation

The most useful aspects of the game (in the students' view) were:
Having to work as a team (3) and learning to communicate in a group(1). In addition 5 students said it was useful for learning about cash flow/ finance/ project-planning/ interrelations of departments etc. Finally 1 student liked the instant results and the time limits because it forced efficient decisions which was helpful to his learning.

The least useful aspects of the game were: the lack of time which reduced the quality of decisions and discussions and thus was harmful to their learning (2). Finally one student complained about the lack of space - he felt they should have had a room for each team.

iii Strategy

Two students stated specifically that they wanted to win, but all 10 took real life considerations into account. Two students admit they were cautious/conservative at the start because of their lack of knowledge. Three students report that they considered the type and experience of the people in the team when planning their strategy.

iv Competition

All 10 students stated competition was helpful; 3 said they wanted to win and a further 3 said that competition makes people try harder. 3 students felt that competition helps create a realistic atmosphere, 1 student felt it created team spirit, and one stated that performance cannot be judged without it. Finally 1 student said that the share graph (results table) made them analyse where they were going wrong.
7.7 My evaluation of students performance

These students were committed and hardworking and there were no drop outs. But it was a company sponsored training scheme, and many of them believed they were being assessed by the tutors and that a report would be sent to their company. This was not the case.

My team and at least one other had personality clashes. They were inclined to disagree and to blame each other for wrong decisions. However, on the whole the teams performed well. Most students were fairly enthusiastic whilst others just did what was necessary.

They made fairly rational decisions when they understood what was needed (when confused - they usually 'played safe'), but my team made several silly errors on forms and calculations. I do not know if the other teams also did this.

Most teams wanted to win but were also keen not to fail too miserably. Some said they would be asked by colleagues at home how they got on in the game, knowing this would be compared to their colleague's performance on the earlier courses.

7.8 My evaluation of the game

Please see PLa section 6.8

7.9 Conclusions

Once again I began this case study with 4 areas to focus upon (see PLa 6.0). During this study, unusually, the effects of competition were not very significant. All the respondents felt that competition was helpful for various reasons eg. as an incentive, for realism etc. Although the students were competitive to a certain degree, and some state that they did want to win, competition did not dominate their decisions and behaviour. However my team did become bored when doing poorly.
The majority of the students approached the game as a learning device. Most report taking real life considerations into account when planning their strategies or, proceeding with caution when they were unsure. This realistic and cautious approach is quite different from the vast majority of degree and diploma students I have observed.

The students had received a comprehensive briefing and debriefing, but I was not sure whether this alone had encouraged their almost universal 'learning approach' or whether other factors such as age, maturity, expectations and assessment also had a significant effect upon students' approaches. I decided to try to investigate this further by looking more closely at students' expectations of games as well as their past experience, age etc.

Résumé

During this case study I witnessed more mature practising managers adopting (almost universally) a learning approach to the game. They had wanted to win but had not allowed this desire to affect their strategies adversely. This finding is at odds with all the other games I have studied where many students are inclined to allow competition to override common sense, with the result that they often play the game as a game and learn very little from the experience.

Because this finding was so different from my previous ones I decided to look at other factors which might affect students' approaches to games and simulations, in particular their expectations and prior experiences (both of games and of life).
Towards the end

After this game I took stock of my progress. I reviewed my findings to date and considered my data as a whole. I felt I had enough data to describe the first three student approaches fairly comprehensively (see Research Findings - Chapter 10 for a description), but I needed more data on the last two approaches to be able to offer adequate descriptions and explanations for them.

I discussed my preliminary findings and their possible explanations with colleagues in the department, and these discussions fortunately pointed me towards Ausubel's work. I was particularly interested in his concept of advance organisers (see Research Findings chapter 10) because I had begun to feel that, unless students were 'pointed in the right direction' at the beginning of the game, many of them quickly became lost during the game.

I also began working upon a model of student approaches/ decisions/ learning during a business game. After this period of reflection I decided to observe two more games in order to be sure that I had modelled the different student approaches correctly, and to gather more information about the Rhino and Confused approaches. I also wanted to investigate the other factors which might affect students' approaches.
## Chapter 8

### Case Study BT

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8.0 Preamble

During the last game (PLb) the students adopted overwhelmingly a learning approach. I was most interested to see if this group of managers would do the same. I had also decided to look at other factors which might influence students' approaches to games and to clarify my models of students' approaches.

8.1 Introduction: general background

I was invited to attend this game by the game administrator (M) after my husband met him by chance at a meeting at work. Their lunch time conversation turned to management training and business games and without too much prompting M offered to have me as an observer at his next game. I telephoned him a few days later to discuss whether he really wanted me to attend, how I would conduct my research, where and when the game was to be played and to arrange my accommodation etc. I also asked for further details to be sent to me about the course, the game and the students. I did not meet M until the evening before the game (which was being held in a hotel in the New Forest) and was a culmination of the one week accounting course.

The evening before the game M explained his reasons for using games in general and this game in particular. In general he thought they were a more interesting way to learn and they gave students an opportunity to put new theories into practice. His specific objectives in playing this game were to reinforce the learning gained from the week's course and to allow the students to put this new learning into practise before returning to work - where they would be expected to be able to utilise the new skills they had gained.

8.11 Outline of game

This game was a fairly simple computerised business simulation which had been purchased by the training division for this financial accounting course. It consisted of three companies
(teams) producing "Supa - Notes" which were described in the handout as high quality handbooks. The teams of students had to decide on price, production levels and advertising in order to achieve 'optimum profit' defined in the handout as:

1. Achieving an acceptable return on investment
2. Maintaining adequate working capital for settling short term debts
3. Protecting their companies 'image' and giving shareholders, long term lenders and customers reasonable consideration.

In addition three members from each team had to assume the roles of Managing director (MD), Sales director and Financial director. In teams with four members, two students shared the finance role. There were detailed briefing notes for each role as well as a written handout on how to play. To test whether the students had understood the handout, there was a short questionnaire at the end of it.

When the students had made their decisions they had to enter them on the Decision and Results sheet (appendix 8.1) from which M, assisted by his colleague N, would enter them into the computer. In addition the MD had to keep a written record of reasons for making those decisions. The game was interactive ie. other teams' decisions affected all the other teams. In addition the tutors could add certain extra problems eg. slumps and booms.

8.2 Context

I observed this game being played for one day on one occasion. The game had been run by the tutors several times before on other financial accounting courses and they were considering making some changes and improvements to it in the near future.

The game took place in a New Forest hotel on an accounting course for lower managers run by the training division of an extremely large British company. There were only 11 students attending instead of the expected 18 (9 men and 2 women).
Only one student was a graduate, while most of the others had joined the company on leaving school and had 'worked their way up' to their present positions. Their ages ranged from 25 to approximately 50. Some students had applied personally to attend the course whilst others had been put forward by their departments.

All 11 students were present throughout the game. They had received the game handout the evening before and had read through it there and then. M (the game administrator) was present throughout the game and conducted the introduction and the debriefing. He was assisted by N who was on hand throughout the game to answer student queries and to assist in the administration and computing. The introduction and debriefing took place in the hotel's conference room. The decision making sessions took place in 3 different but nearby rooms (my team were relegated to a hotel bedroom).

I was present for the game and the debriefing, and for the short introduction on the day of the game. I sat with one team during the play (having been invited to join them over breakfast). I had been introduced to the students over dinner the evening before as a research student of games and simulations who would be sitting in the next day. Unfortunately M had already said that I was attending in his earlier introduction (which I missed because he held it before I arrived) and had told them to whom I was married! This was a little worrying because my husband was senior to them all. Some students knew him and one student worked for his division and was rather in awe of him. I had been anxious that they should not connect us in case they thought I might report back to him. Therefore I had decided to use my maiden name on the feedback sheets etc. Which meant I then had to assure them my research was confidential, even from my husband, and to explain why I had my maiden name on the feedback sheets! I do not think I managed to do this very well because I only received 4 (out of 11) replies.

8.3 Observation of the game
I missed the main introduction because it was held a day early, so that M could be sure to finish the course early. However M stated he merely ran through the game handout and instructions with the students, advising them to allocate roles, decide on team names etc. that evening so that they could begin play promptly the next day.

On the day of the game, however, there was another short introductory session. M asked the third team for its name and the allocation of roles; the other two teams had decided the evening before. M then instructed them to prepare budgets for profit and loss and cash flow for the 6 periods of play in the next 45 minutes, then to have the first decision made 30 minutes later. Some of the students looked rather unhappy at this. M assured them that he and N would be on hand if they needed help. He stated that today's objective was to learn, but the MD's function was to get the decisions out on time.

M then warned them that the market in the game would drop but then improve after a while. He then ran through how to calculate their breakeven point. After ascertaining that they had all read the handout he instructed them to answer the questions at the back, which they did. After a minute or so M read the questions out loud and asked individuals for their answers (the questions were designed to find out whether the students had understood the handout).

He next explained that the tutors would play the role of bank managers when necessary. He added that teams could go bankrupt but would not stop trading. In this instance the team would run the company on the bank's behalf. As he explained this he handed out more forms, adding that the idea of the game was to learn and if they shared tasks they would learn more. He then explained the solvency guide (appendix 8.2) and where they needed to be profitable. He apologised for the number of forms and sent them off to their separate rooms to decide their budgets. This introduction took 22
minutes, during which most students seemed to be listening, some looked at the forms and the handout and there was little conversation.

8.32 Decision making sessions: The students

i. Teams

There were only 11 students divided into 3 teams, two with 4 and one with 3 members. Team 1 (ours) was in a very cold hotel bedroom in which the beds had been stacked out of the way and tables and chairs had been put in their place. Team 2 had a room off the conference room. Team 3 remained in the conference room. Thus I could only observe my team and there was no contact between teams except for coffee and lunch breaks.

ii. Individual contributions

All four students made a substantial contribution during the day's play but they divided into two 'camps'. The two students playing the finance roles had a great deal of tedious calculation and form filling to do. Consequently they were often too preoccupied with that to keep up with the decisions and arguments put by the MD and the Sales Director. This was especially true for R. He found the calculations and form filling extremely difficult, and was so concerned about his failure to understand them that he missed out on a great deal of the discussions. He was aware that much of the proceedings were going on above his head and on two occasions asked the team to delay any decisions until he had finished so that he could join in the discussion.

The other finance director was very involved in the discussions whenever he could tear himself away from the calculations. He was quite a forceful character and had little difficulty in putting his views over and often successfully dictated policy.

The MD's and Sales Director's tasks were not very time
Therefore they spent much of their time debating 'what if' issues. They both understood their tasks and had little difficulty in carrying them out. They were therefore able to dictate much of the strategy because they had plenty of time to run through all the problems and the alternatives, presenting the two finance directors with a 'fait accompli' on several occasions. However they did take each others' views into account when time allowed and most of the decisions were made with the majority's assent.

iii. Morale

There was no real problem of morale, despite the fact that they did not really know how well or badly they were doing (because the finance directors kept making mistakes). They continued to work fairly enthusiastically throughout the day, only becoming a little worried when they had to borrow money because of a miscalculation. The only person to become agitated and upset was R because of his inability to cope with the calculations. He found this upsetting and rather embarrassing and kept trying to make excuses for himself. He was very relieved when the game was over.

iv. Competitive spirit

They were not very competitive throughout the game. They merely wanted to do as well as they could within their own objectives. They did not really consider their rivals until about half way through when they decided to work out what price the others were charging, to see if theirs was a competitive one. They had decided to go for a high price, high quality, small market strategy but found instead they were "Tesco's rather than Rolls Royce" due to the other teams' prices and marketing. They did not know that they had 'won' until preparing for the debriefing and they received this news with surprised pleasure. Their MD's speech at the debriefing was a little self-congratulatory but not overly so.

v. Coping with the mechanics
They had all read the handout prior to the game and had little difficulty understanding the rules etc. However there were too many complicated forms to fill out and consequently there were some problems over these. They had a little trouble deciding their initial strategy and the advice from tutors only succeeded in confusing them further. However, after ignoring the tutors and going ahead with their initial strategy they had few problems. They were sometimes short of time but managed to make rational decisions despite this.

8.33 Decision making sessions: The tutors

The students knew M because he had been running the course for the whole week but they did not know N who had arrived the evening before, after dinner.

During the game the two tutors gave advice, criticism and asked questions designed to make the teams think. They went from room to room listening to the teams' discussions and offered help when they thought it was needed, as well as when asked. Because the game was relatively simple it did not require much administration. M and N both handed out forms, collected and processed decisions through the computer and were on-hand for consultation. The students were rather disturbed by the frequent appearances of the tutors in their room at the beginning of the game, but later learned to ignore them if they did not need help. I had very little contact with the tutors during the game because I wanted the students to trust me.

8.34 The debriefing

Preamble

After the final decision had been made, M asked the students to assemble in the conference room where he quickly talked through an OHP slide instructing them on how to prepare for their presentation for the debriefing session. He said each team would have 5 minutes to describe:
a. The company's objectives; were they achieved?; were they realistic?; would they change them if they continued playing?
b. The strategy they adopted and why.
c. What happened and what actions they took.
d. What had they learned?

Then he sent them back to their rooms for half an hour's preparation, adding they could use any teaching aids they liked.

My team 'volunteered' the MD for the presentation, who quickly began to jot down facts and figures. They were not able to work out their total assets without N's help. The MD quickly wrote down their objectives, strategy and how they tried to achieve them because he had been keeping a written record on the appropriate sheet. They became stuck on "what did we learn?" The two finance students felt that they were both confused and felt much of their success had depended on pure chance. The MD wanted to find a better way of putting it and they finally decided to say they had learned to consider all the options, constantly to review the situation, and to take calculated risks and to be flexible. R muttered about taking chances and pure luck.

M asked them to put their final balance sheets on an OHP "for fun", so they could "have a good laugh". Whilst they were doing this they decided to put as much as possible on OHPs and ended up with 7 of them.

The debriefing

The debriefing took place in the conference room an hour and a quarter after the final decision was handed in. All the students were present, plus the two tutors, the latter were at the front of the room. M immediately called for the presentation of the balance sheet of one of the three teams. After a few seconds of horrified looks one team volunteered.
Team 1

The youngest member of the course presented his team's results. He was obviously embarrassed at how poorly they had done, but tried to disguise this with a very offhand and jokey manner. Their original strategy had been to capture the top end of the market by selling at a high price with heavy advertising. Initially they did quite well showing a healthy profit. Then for reasons best known to themselves, they cut advertising and sales fell. In the next period they dropped their prices and sales rose. Then they put up their prices and sales fell. They continued in this manner throughout the game and ended with a substantial loss and little apparent understanding of how the variables affected each other.

They said they had learned the necessity of reviewing their strategy and that they did "spot some trends" during the game. M asked the other teams if there were any questions, but there were none. He then added that this team had done well compared to other groups in the past, only losing control in the last round. M then called for my team to present it's results.

Team 2

My team's objectives had been to achieve a 10% return on investment and to capture 10-25% of the market. Their initial strategy had been to charge a relatively high price with high advertising and to be an 'up market', high quality product which would secure loyal customers whom the recession would not affect. After one round they realised they were "not Harrods but Tesco" and so they had reviewed their strategy accordingly.

They got more ambitious during the game, trying to secure a bigger market share. They only contracted during the recession when they cut their price and had no advertising in order to survive. At the end they had a market share of 33% and the largest profits. The MD congratulated his team (tongue in cheek) on their good work, sound judgement etc. M
commented that it was the excellent advice from their consultants (the tutors) that had saved them.

There was a question from a student in team 3 concerning the amount of stock my team was holding. Surely this was poor business practice? M said that they did not have much stock, and so it was OK. The reason for the query was because team 3 had deliberately run down it's stock believing that the winners of the game were those with the largest cash balance and that stocks would not count as assets.

Team 3

The final team had aimed at achieving a 40% share of the market and felt that if all three teams had got together they could have worked out a joint strategy that would have made everyone happy. They decided to have a competitive price plus reasonable advertising and succeeded in gaining 33% of the market in the first 2 rounds. But then the 'up market' team reduced their prices and took over the market so they retaliated by cutting prices. They then became involved in a price war designed to "wipe out" the opposition - which they felt they had achieved. They anticipated a boom in period 6, increased their production accordingly and sold all their stock by the end of the game, ending with a cash balance. They had not needed a loan (the other two teams did). Their spokesperson put up an OHP of their sales figures and profits.

M asked if there were any questions? There were none, so he began his part of the debriefing, running through how the teams had performed with OHPs of their profits. He said that Team 1 had acted like two different teams and asked if they had all taken turns to make decisions. They replied that they had not.

He quickly passed on to Team 2, congratulating them on being the most successful, on making very sensible decisions and in avoiding a price war. He added that they had watched their stock levels and used the contribution policy he had covered during the week's course. They were one of the best teams...
ever. He spoiled this slightly by asking them if they had heard about the game from colleagues at work, they had not.

M said that Team 3 had an interesting approach, but added that the tutors had needed to refuse one of their decisions in order to avoid a very unrealistic price war. In addition they were selling stock at less than cost which no company can do for long. One of the team members explained that they were 'thrown' by Team 1 when it dropped its prices so far. M explained that this was "the problem of competition, people start reacting instinctively and don't think things through". But on the whole they had all thought about things and held back because they were anticipating slumps and recoveries etc.

He quickly described the various decisions that they had all made and congratulated them again on avoiding a bad price war, on their cash control and rebudgeting, and on using the contribution policy. He asked again for any questions. There was only one about the number and complexity of the forms - M explained that they would be redesigned soon. He then distributed the questionnaires that came with the game, asking students to complete them immediately. He would run through their answers and then collect in the forms afterwards.

8.4 Informal discussion with and among game participants

I remained with my team during lunch and coffee breaks. They talked about the game in terms of how much difficulty they were having and how much they liked it (this varied with their difficulties) and not about their strategy. The two finance students were less enthusiastic because the forms were too tedious and complex. The sales director and MD were a little bored at times because they did not have enough to do. On the whole they were quite favourable towards the game. They were not convinced that it would help them at work because it was too simplistic to be immediately relevant.

When talking with rival team members their conversation was usually friendly banter about how much better they were going to do than everyone else. Conversation between decisions
usually stemmed from any problems they were having with the
game and how to solve them.

8.5 Tutor comments

I talked to the game administrator M prior to the game and he
explained his reasons for using the game (see section 8.1).
He did not complete my questionnaire and has since left the
training division and I am loathe to ask him for it.

He had used the game several times before and was fairly
satisfied with it but admitted that it was rather simplistic
and that they were in the process of improving certain areas
of it eg. the decision forms.

Throughout the game he and his colleague were cheerful and
seemed happy with the teams and their performances. He was
not happy with the facilities at the hotel eg. no
photocopying, noisy conference room. These made his task a
little more difficult. After the game he gave me the
questionnaires that the students had completed (for him) and
said he was tired and glad it was over, it had been a long
week. He felt the game had been reasonably successful.

8.6 Feedback sheet results

8.61 Administration of Feedback sheets

I distributed two types of feedback sheets (appendices 8.3 and
8.4). One sheet asked students to describe what happened in
the game, how they felt about it and what they had learned.
The other sheet asked the students to answer my questions
about their expectations and learning from the game, whether
they felt the competitive element helped or hindered their
learning, what was most and least useful about the game and
whether they had any additional comments.

I gave each student a feedback sheet after the debriefing,
stressed the confidentiality of their replies and instructed
them to return it in the freepost envelope to me at the
University. I received only 4 (out of 11) replies plus two invitations to interview two of the respondents if I wanted further information.

8.62 Analysis of feedback sheets

i. Expectations and Learning

Two students did not expect to learn very much from the game because they had learned very little from the previous games that they had played. Despite this scepticism, one of these students thought the aim of the game may have been to reinforce the teaching and learning from the week's course. He felt that the repetitive calculations for the financial accounts did reinforce learning but the competitive side of the game tended to dominate. He reported that a possible useful lesson from the game was "not to lose sight of the financial aspects in the heat of the moment".

The other sceptic, who admitted starting the game with a slightly negative attitude, did acquire some useful insights and experiences from the game. He "gained a further insight into the complexities of running a business", also "...it (the game) did highlight the need for effective communication when gathering information and manipulating it for decision making". He also experienced "co-ordinated decision making for the first time".

The third student expected the game to be a chance to put into practice the principles taught on the week's course. He was not disappointed in this respect, though did not report any learning.

The fourth student reported no learning but felt that one of the purposes of the game should have been to clear up any misunderstandings that they might have had. He felt that as they were not allowed to make mistakes "they didn't know what they didn't understand", therefore the opportunity was wasted.
ii. Feelings/Competition

Two students felt very strongly that the competitive nature of the game and the competitive behaviour of some of the students was harmful to their learning.

"...there is a danger that in the interests of maintaining the competitive nature and not 'letting the side down' the real value/understanding of the principles may be lost. A slower and academic approach to the game would have suited me better - some decisions were taken just to score off the other team rather than on the basis of 'Good Business'."

"I think that the competitive spirit takes over and one can easily end up losing the company by 'the seat of one's pants'. This certainly happened with one or two of us in our team! To the extent that the accounting aspects are ignored therefore the competition is harmful."

Both these students blamed certain members of the teams for the excessive competition, arguing that such open displays of competition may have two effects:

1. Other students will 'opt out'.
2. This behaviour is not based on 'good business' theory therefore is harmful to their learning.

One of the students however reported that the competitive nature of the game was beneficial to his learning:

"This was due to the fact that it enabled me to focus my interest on a set objective, and thus concentrate on understanding the concepts that would be necessary to reach that objective."

This is the student who felt he had gained several useful insights into running a business - more than the other students report. However his team did not win the game so it
would seem that they were concentrating on too narrow a set of concepts or had chosen the wrong objectives, which must have consequences on their learning. His general feeling was that although the game was too simplistic he felt that it was a useful addition to the course because it enabled him to see the usefulness of accounting principles within a business and how they interact with each other.

One of the students confessed that his major interest in games such as these, was to find out how the model works which distracts him from the main purpose of the game.

The fourth student felt that the tutors had helped them too much, and that students should be allowed to make mistakes and work through without assistance unless they ask for it.

iii. Strategy

Three of the students who completed the feedback sheet were in the same team, their descriptions of their strategy differ slightly but they agree on the main points. They had a logical plan; to get, maintain, and keep a 40% share of the market by competitive pricing and judicious advertising. At the same time they wanted to create difficulties for the other teams to 'force their hand' ie. make them reduce their prices and make mistakes. They also considered what the other teams would be likely to do and how this would affect them. One member of the team stressed the need for teamwork and proper use of available information.

The fourth student did not mention his team's strategy. He was in the team I observed and they were logical in their choice of strategy. Unfortunately no-one from the losing team (who it seems had an illogical and inconsistent strategy) replied to my feedback sheet. Therefore I cannot offer any explanations for their behaviour except from my observations and conversation with these team members. It seems they did not understand how the variables interacted and having made several very silly mistakes early on, they adopted the role of the clown and carried on making silly mistakes - with the
encouragement of some of team 3.

iv. Evaluation

As I said earlier two students believed that the competitive nature of the game was detrimental to their learning. Though they admitted that it did add some sense of reality to the game, they stated that the competitive element should not be allowed to dominate.

Two students felt the game to be too simplistic and would have welcomed a longer and more complex game. Two students also felt that the repetitive calculations were unnecessary and tedious. One student felt that there should have been more time spent on debriefing and presentations. He suggested that the teams could have prepared overnight and had the debriefing in the morning. Overall, the students all made some reference to the lack of time spent on the exercise. One suggested that it was rushed to enable the tutor to leave a day early - which was more or less true.

8.7 My evaluation of the students performance

It must be remembered that this was a company training course consisting of students of various ages with differing years of service but all at (approximately) the same rank. Their attitudes towards the game and each other were mixed but they can be divided into two age groups and two approaches.

The 'older' members of the course (even the sceptics) approached the game as a learning device. They tried to set sensible objectives for their teams and to attain them in a logical way. However this was not always possible because of the influence of the other members of the course.

The 'younger' members of the course approached the game as a little light relief from work and the rest of the course. They naturally wanted to win. They were distributed between two teams (1 and 3) and managed to involve these two teams in very silly decisions and destructively competitive behaviour.
(to the extent that one set of decisions was rejected by the tutors).

Team 1 had two 'younger' students in it (and only one older - poor man) they succeeded in making nonsensical decisions almost from the start. Their debriefing presentation illustrated that they had almost no understanding of how any of the variables interacted. It is very doubtful if any of this team learned anything.

Team 3 had one of the 'younger' students in it - he was the only graduate on the course and whilst the others teased him about it they were also impressed enough to heed some of his suggestions. This led them into direct and excessive competition with the other teams to the frustration of most of his team members.

Team 2, on the other hand, remained blissfully unaware of the competitive attitudes of the other teams (this team had no 'younger' students). They made consistent and logical decisions throughout (with the tutors' help). Occasionally they reacted to price decreases by the other teams - but cautiously and sensibly, rather than in blind panic. They were 'helped' by the fact that they were unable to work out the other teams' prices. The tutors obliged them by not revealing this information. If they had worked them out they may have been shocked into reacting.

8.8 My evaluation of the game

I missed the first introduction and therefore cannot comment upon that. The short introduction that I did attend was a brief run through the rules and an instruction to the students to try to learn from the game.

The handout was quite detailed in terms of how to play, the role descriptions to be adopted, and the objectives of the game. The students had all read the handout the evening before and my team were able to begin playing almost immediately, which indicated that they understood the rules.
The 'turn round' time between submitting decisions and getting the results back was very short (about 10 minutes) and certainly prevented the usual boredom and loss of momentum that occurs when long waits are necessary. My team used these few minutes to discuss the next move.

The game administrators were very helpful, offering advice when they thought it was needed (not just when asked) and asking thought-provoking questions. However one of the students felt this should not have happened, the tutors should have waited until they were asked.

The debriefing was not really very helpful. The teams should have been given more time and encouragement to comment upon all the presentations and to ask questions about issues that they did not understand. The game administrator could certainly have expanded on the different team strategies and the consequences of certain actions in order to clarify some of the confusions that remained (especially for team 1). It may have been helpful to have related the game to the rest of the course and to their work.

8.9 Conclusions

This game clearly demonstrated the dangers of competition. One team continually made foolish decisions and never began to understand the underlying principles of the game. The other competitive team were saved from this fate by the more mature members (and the tutors) 'dampening down' some of the more risky and illogical decisions. In the meantime, the other team (who were physically separated from the others) remained blissfully unaware of the fiercely competitive attitude of the other teams and made consistent, logical decisions that led them to victory. If the winning team had been aware of the other teams' prices and strategies (eg, by results being displayed upon a prominent board) they may have reacted differently. It may therefore be advisable to do away with such public scoring systems during these games in an attempt to dampen down excessive competition.
This game also provided illustrations of my three main approaches to games and simulations ie. competitive, learning, skill specific, and also illustrated how the game administrators can influence the students' decisions (if not their approach).

Résumé

This game demonstrated that managers cannot always be relied upon to adopt a learning approach. The more mature students tended to adopt a learning approach but the less experienced students adopted a competitive approach. These findings are similar to earlier games (except PLb). However, I have subsequently attended a game played by managers during which three out of four teams adopted an intensely competitive approach. In their defence, it must be added that they had been subjected to a very competitive four week course which offered prizes to the successful teams for a variety of learning exercises as well as orienteering, snooker, and table tennis tournaments. These students treated the business game in the same spirit as the rest of the exercises ie. the objective was to "smash the opposition" and they paid little attention to the learning objectives. Once again it must be concluded that tutors play a vital role in 'setting the scene' before a business game commences.
9.0 Preamble

During the last two games (PLb and BT) I observed that more mature managers tended to adopt a learning approach. This game was attended by Senior Officers of the Armed Forces of differing rank and age, I was very intrigued at what kinds of approach they would adopt. At the same time I was still concentrating upon:

1. clarifying the students' various approaches to games 
2. how the game administrators could influence students' approaches and learning

This game was particularly well run and I would recommend other tutors to adopt some of the administrators techniques and tactics.

9.1 Introduction and general background

I became involved in this game because a colleague at Surrey University had attended a simulation game at the same institution. She put me in touch with the tutor, but his course was cancelled. He advised me to contact P, who was about to run a game. P responded to my letter swiftly but was initially reluctant to allow me to issue a questionnaire and said I definitely could not tape record any of the proceedings. I sent my questionnaire for approval and requested an interview. P amended the questionnaire and arranged an interview just prior to the game which did not transpire. When I tried to question him he said most answers were in the introduction.

9.11 Outline of game

P's game was a computerised business simulation game with five companies (teams) producing a liquid which had certain properties (jokes about it being good for cleaning cars and mixing with gin) He also warned them that there was no substitute for it's raw material. There were 5 markets in which to compete. In the first (test) run companies were
allocated markets but in the second run (national launch) they could choose which markets to sell their goods in. The teams were given starting positions for the first and second runs (P emphasised that nothing was carried over from the first run except experience). Students had to decide on production levels, markets, staff, advertisements, but not price because this was fixed for wholesale, except that they could negotiate for bulk contracts. They were not allowed to stock out i.e. sell more goods than they had in stock, they had to make up deficits by buying from other companies. Decisions were put on computerised forms, and P entered these into the computer. The game was interactive and not very complex. Providing no other companies entered a sales area then sales:advertising ratios were fairly easy to work out.

9.2 Context

The game lasted for three days and I observed it on one occasion. The game is run several times a year and has been in use for 19 years. It took part in an annexe of a London Polytechnic on a Resettlement course for Senior officers of the armed forces (for Officers who are leaving the forces and who wish to learn the basics of business management with a view to obtaining a managerial post). All 35 students were male, some were graduates who had been in the forces on short commissions i.e. 3-4 years. Others were officers with 30-40 years service and who were of very high rank. Thus there was a mixture of ages, backgrounds, rank as well as the three 'divisions' of the forces.

Almost all the students were present for the whole of the first day. But during the three days some students missed a few hours to go for job interviews - after all the object of the course was to enable them to find a job. The game handout had been distributed several days before the game with exhortations to study it carefully.

P who designed the game - presented the introduction, was present most of the time and conducted the debriefing. He was aided by S (who had played the same role in PLA and b) who
conducted financial debriefings in addition to P's. P was assisted by two other members of staff who were more or less present throughout and there were three visiting tutors who conducted specialist activities eg. marketing, industrial relations, finance. All the tutors had helped run the game before. The whole exercise was conducted in the same room.

I was present throughout, sitting with one team and chatting to others over coffee and lunch. I was introduced before the game's introduction by P who described me as a research student from Surrey University who was studying competitive business games, especially the effects of competition. I was there at their invitation and I would sit with one team throughout. He stressed that my information was confidential. He then called for volunteer teams for me to sit with, three out of the five volunteered. I sat with the team nearest me. P then asked if anyone objected to my presence - no-one did.

9.3 Observation of the game

9.31. Introduction

Everyone was present by 10am (the time on the programme for the start) in fact most students were seated by 9.50am some were reading the game handout, others talking, some rushing around with pieces of paper.

After my introductions P began to explain the game. He described it as computerised and added that he controlled the computer and that he would have 5-6 part-time staff to help as well as 2-3 full time staff. He then ran through the timetable, stressing the need for punctuality. He explained that he began using this game when he was looking for a game to 'stick together' the five week course but could not find one. Then he met Professor Andlinger at Harvard who had a set of figures that he did not know what to do with. P put the figures together to form this game which he revises every year. He stressed that this was not only about real life management (he got feedback from real companies and took heed) but also that their lectures had covered all the problems in
the game. Therefore it is not a game but a teaching medium.
"You're here to learn and consolidate the last four weeks".
But he added that he wanted them to enter into the spirit of
things and promised a shield to the winners which they could
keep for seven hours!

P then ran through the anomalies of the game ie. the interest
rate is 10% per decision period which seems very high but he
assured them it was realistic for the exercise. He also
warned them that their £160,000 starting capital was
inadequate and they would have to borrow because they gave
four periods credit to their customers. P claimed this was a
deliberate ploy to make them concentrate on their cash flow
planning. He added that the salaries and advertisement rates
were carefully balanced and asked them to just accept them.

At this point P put up an OHP to illustrate his objectives for
playing the game (see below) and ran through it.

Objectives (OHP)
To demonstrate:
Business Planning
Business Policy making
Policy Execution
Group Behaviour
To achieve Balance and Maximise net assets.

P stressed again that it was real and it was difficult and
that whilst this group would not be so concerned with group
behaviour the game could be run for different objectives. He
then told a story about one such time when a Company wanted to
use the game to find the breaking point of its executives.
Then followed another lighthearted aside about past students
getting very 'het up' during the game and becoming aggressive
or even leaving.

P then read through the game handout, explaining that the test
market pre run is like real life except that the market is
allocated to the teams. He stressed that nothing is carried
forward from the test run except their experience. He stated
they would stop at period 12 but that the company should be left in a viable trading position. He warned that the company can be bankrupted and warned them of numerous pitfalls eg. wasting time on deciding a name, to use pencil on forms, have an efficient company structure and organisation. He added that they were up against time (a decision period was aprox 45 minutes), and to make sure that both accountants are numerate and to give their negotiator the power to negotiate.

Then followed further instructions on how to play, with rules and regulations in the game handout. He ran through the boards that were around the room for profits, annual reports, contracts, audits etc. and then how to fill in the computer forms and the accounts form. He finally warned them about overselling with too few stocks, over advertising with too few salesmen, having too much stock and again the importance of cash flow planning (loans will probably be necessary but the interest rate will depend on their performance and ability to predict their needs in advance), reminding them of past coursework as he went through.

The introduction took one hour, students appeared to be listening, some taking notes and looking at the handout. There were raised eyebrows, laughter and asides at the stories and jokes from P. Coffee was served in the room at 11am and this coincided nicely with the end of P's introduction.

After coffee another tutor S appeared, apologised for being late and launched into the finance/accounting introduction. After checking they all had a copy of the accounts form he asked them to practise filling it in with his figures (displayed on the OHP) and ran through how to do it. S then talked briefly about calculating costs and reminded them again of the games anomaly concerning costs (but it saves an extra arithmetic) and of the penalties for running out of stocks ie. they must buy in from other companies and risk losing customer faith. Then followed a run through of more forms, with students working through the figures, plus advice on the production delay and of borrowing enough to pay the interest on the loan. There were occasional queries and all the
students appeared to be listening and following the form filling.

S then handed out a "task to exercise your minds with" (an accounts form plus figures to be entered and calculated) promising a reward of £2000 to start the game with if they finished by 1.00pm or a fine of £2000 if they were late. This exercise was tackled by all members of the team and my team finished first to their delight. On the basis of who had completed the task first they rearranged their roles so that the "mathematicians" took over the accounts forms. All the teams completed the task by 1.00pm, some began discussing tactics, others went for lunch.

9.32 Decision making sessions: The students

i. Teams

There were 36 students in 5 teams (4 teams of 7 and 1 of 8). My team had 7. I could observe (see but not really hear) the other teams during quiet periods. Certain members of the other teams were more mobile than others - but this was probably due to the role they adopted.

ii. Individual contributions

There were two Rhinos in my team, one was the youngest member of the team and the most junior in rank. He told me that there were "too many chiefs and not enough indians" adding "I'm an indian I've got no choice" because no-one would listen to his suggestions anyway, due to his lack of seniority. He explained that his lack of contribution to the game was because he had missed most of the finance lectures on the course due to the number of interviews he had to go to. Therefore he felt he knew very little about the main principles of the game. He was going to an interview in the morning of the second day therefore had been appointed 'gofer' for the team so that he was expendable. He admitted to being very bored by the end of the first day and did not return until the third day. He did try to understand the accounts
forms and asked one of the team to give him extra instruction. This was so succesful that he took over this role for the last afternoon when the previous holder went for an interview.

The other Rhino explained his late arrivals and erratic contributions to the game in several ways. The main reason being that he was treating the course as a holiday, he did not want to work when he left the services therefore did not need to try too hard during the course. However he did fulfil his tasks promptly and he did offer suggestions and arguments. This was another reason for his lack of enthusiasm - he felt their strategy was altogether too pennypinching, he wanted to speculate on a much grander scale with large loans and many more production lines but the others would not agree. Lastly he felt there were too many in the team, thus there was not enough for some people to do. He would have preferred to have swopped roles frequently so that everyone could try everything, instead he was a little bored and could be seen filling in various forms unrelated to the exercise.

The student who played Managing Director(MD) also suffered from too little to do but seemed less concerned about it. He occasionally made suggestions and watched the forms being filled in but left most of the discussions and decisions to the two most active members. However when they were unable to agree on a course of action he asserted himself, made a decision and stuck to it. He seemed to be thoroughly enjoying himself and confirmed this to me later.

Two members of the team made most noise and most decisions, they played the role of sales manager(SM) and accountant. The SM was the most senior officer on the course and I believe this did have some influence upon the others in the team. SM tactfully argued his points and invariably got his own way (fortunately he was very often right). He accurately calculated the sales:advertising ratio very early on in the test run and was thus able to say how many goods they could sell each time, which was invaluable for their cash flow planning.
The accountant was a good organiser who also quickly got to grips with the accounts form. He was able to work out the accounts on time and to delegate tasks and roles to the others when necessary. He seemed to have more understanding than the others of what variables affected which results and generally of what was required in running a business.

The other two members of the team contributed throughout the game but concentrated on working out figures, one kept the other accounts form (audit) the other appeared to be double checking this. However they both made suggestions and joined in discussions especially if they concerned borrowing money. They were both opposed to borrowing more than necessary. The auditor had to negotiate with S (who played the role of bank manager) when ever they needed a loan - which he did very successfully.

Throughout the game P introduced little 'hiccups' to shake up the teams eg. threatening disruption of raw materials, government health warnings, sabotage, strike threats etc. All these 'extras' plus buying raw materials, market research and bank loans had to be negotiated with the appropriate member of staff. Usually (in other games) one member of the team takes on this kind of role but in this team everyone except the accountant and the MD took part in some kind of negotiations.

iii. Morale

The team came second overall and never really had any problems throughout the game. This was largely due to the SM's accurate figures and the fact that no other team competed in one of their markets (which would have disrupted SM's calculations). As a result the team remained cheerful throughout with only the two Rhinos showing any real signs of boredom. The only time voices were raised was over the question of borrowing money and opening up new production lines - but it became a joke on the end - against Rhino 2. They agreed that Rhino 2 would never spend his own money in such large amounts on ventures. He countered that it was
never your own money in business but the banks or the shareholders.

They were not late back from coffee or lunch and talked about the game on general terms to other teams and to me at these times. But most wanted to know how I was enjoying it, how did it compare with other games and what was I going to do when I had finished this research.

iv. Competitive spirit

They did not appear to be particularly competitive, though they did want to win. SM made the most competitive remarks "Come on lads we're going to win this" (the very first exercise set by S). They did sometimes talk quietly when discussing the price of government tenders and when rival team members were close by. In addition there was friendly rivalry when the score boards were updated. But overall their strategy was one of trying to do well whilst understanding the underlying principles of the game.

v. Coping with the mechanics

The team seemed to have very few problems in filling in the decision form or the accounts sheets. They gave the financial roles to the team members who had least trouble completing the first financial exercise set by S. They handled the game with ease and confidence, even to the point of explaining how it all worked to one or two other team members. The SD calculated the necessary sales/advertising ratios virtually straight away and had no problems from then on. Because they knew how to calculate sales and how much cash they had, they had very few problems throughout the game. They decided their strategy early in the game based on rational reasoned ideas gleaned from market information, tutors' advice and financial calculations, and stuck to it. Decisions were made and problems/alternative actions were discussed by the whole group and were swiftly dealt with. They were usually early handing in their decisions, the only delays were due to the laborious nature of the accounts and audit sheets.
This game was run during the last few days of a five week course, the students had met all of the game administrators before in a lecturing capacity. Varying degrees of rapport had been reached between students and tutors but none of my team had any qualms about approaching any of the tutors for advice or negotiations. It must be remembered that many of the students were very senior officers in the forces - used to dealing with a wide range of people - and not likely to be intimidated by polytechnic lecturers. Interestingly there was a slight note of deference from some of the older tutors towards some of the more senior officers - the tutors had themselves been in the forces at some time and it is very unlikely that they would have reached such heights. There was also more than a hint of military discipline in the running of the game "We run a tight ship here."(P).

During the game the three full time tutors took part in the actual administration of the game including P (the designer) - handing out and collecting in forms, processing them into the computer, putting up profits, scores etc. They also played roles in the game along with the 'specialist' part time tutors (who also helped out with admin if necessary). P acted as overseer - often sitting at the front of the room on a special high chair from which he could survey the whole proceedings. From here he injected his 'gremlins' into the game eg. strikes, sabotage, health warnings etc. and was available for queries, extra ideas as well as the more normal administration.

There was almost always one tutor available for consultation (often many more) in the room although twice the three full time tutors had to retire to another floor for other business - though they did announce where they could be found if needed. Some of the part time tutors remained in a side room for most of the game - they acted as consultants for the teams eg. market research, industrial relations etc. The other tutors also used the room but they were more often in the main room overseeing the proceedings, listening to groups and
offering help when asked and when they thought it was needed.

The two full time tutors both sought me out to tell me what a good game it was and how they enjoyed running it. M also added that this intake were very able and enthusiastic about the course and that he foresaw an excellent three days, adding that some groups in the past had not been so pleasant and that had spoiled the game. N seemed more concerned about the way the teams organised themselves, several times he remarked to me that all the teams members were sitting too far apart to enable sensible communication and also that all the papers and forms were jumbled up in the middle of the table. He also found it difficult to understand why it took people so long to fill in the accounts forms and to do the necessary arithmetic.

I tried to keep my exchanges with the tutors during the game to the minimum as I usually do - in order to gain the students confidence. S did speak to me briefly about how my research was progressing (I had met him on two earlier games) but not about the game. The other part time tutors were usually in the side room and I was in the main room therefore I had virtually no contact with them.

9.34 The Debriefing

This game was run differently to most games that I attended, there were two 'mini' debriefings or 'teach ins' during the game and one final end of game debriefing.

The first teach in occurred on the second morning after they had played eight rounds of the test run. This was a clever idea, the students had an opportunity to learn how to play the game, find out about the key variables and make all their 'silly' mistakes before launching into the game proper. This was neatly disguised as as a test run for their product in a limited market area (a new product previously unknown in the market is often tested in this way) prior to 'going national' ie. becoming a public limited company and selling their product throughout the country.
This teach in was very brief (9 minutes) P stood at the front of the room, announcing they had all done well and had finished 20 minutes early. He briefly explained that now everyone had made all their mistakes and thought they knew what they were doing (he knew this because they had all started talking quietly about their plans) he was going to step up the pressure in the main game. He reminded them that the rules only told them what they could not do - they could do lots of extra things besides but should discuss it with him first. He warned them again that there was no substitute raw material for their product and of fire risks. He added that they should be plotting sales area movements and calculating their share of the market. There were blank looks from some teams and P showed them how to do it. Finally, he warned them about having enough cash and to beware of having too much stock.

The second teach in took place at the end of the afternoon of the second day after they had made decision 7. It lasted for 40 minutes and was shared between P who discussed marketing and S who discussed finance.

P began by saying this session was to sum up what had been happening so far and that it may change some of their thinking. He added they had all done very well in the entrepreneurial activities but gave them further hints for ideas for extra sales eg. franchising, export, mail order and suggested that the product also kills flies.

He noted they were all plotting the market potential and then dropped his bombshell - they were selling to the government at a loss - perhaps this was deliberate he added, because they had cash flow problems and desperately needed cash - but perhaps it was because they had failed to calculate their break even point. At this there were several looks of horror from some of the teams. The other mistake they had made was failing to realise that not all the contract had been bid for therefore the government was fored to buy the rest from a stockholding company (which P had invented) at a higher price than it paid the successful tenders. The SM in our team had
in fact realised this and offered some stocks at a higher price but was told he was too late, so he was not very pleased at P's remarks.

P then warned them to look after their sales reps adequately, the year ahead was likely to be unsettled. Also the market size had increased and they had better all join the employers federation (set up by one of the other teams members) or else he would enjoy setting them against each other. He also applauded the fine job that the accountants were doing.

Finally he instructed them with the aid of the OHP how to calculate how many companies were operating in each area, how to negotiate for marketing information, how to calculate the potential sales in each region, how advertising affected sales and how to calculate their break even point for each unit. Our MD was rather cross at this because he felt the other teams were being 'given' something which our team had already worked out. Some of the other teams certainly looked rather worried and began to do rapid calculations.

At this point S took over, saying that the objective of being in business is to make money, therefore we need to know the relationship between production and costs. He used the OHP to explain, with graphs and tables.

1. How much extra it costs to produce 1 or 1000 additional products not forgetting, advertisements, interest charges and overtime
2. The break even point
3. How much to sell or produce to achieve your aim (if you have an aim)
4. At what stage you can afford to sell to the government, if you want to

There were even more worried faces after this teach in with my team debating whether to change their strategy, cut advertisements etc. P's teach in took 26 minutes and S's took 16 minutes.
The final debriefing took place after lunch on the third day, 20 minutes after the scores had been put up. The scores were greeted with smiles and hand shakes between the winners and mildly caustic remarks from some of the losers eg. "It's purely cosmetic, we've achieved quarter of the market" (SM)

P began by congratulating them all on doing so well compared with other groups in the past. He then congratulated the winners and presented the shield to the team's MD saying it was very close run and the betting had been on team D (my team) but they came second. He thought the accountants had done extremely well - applause - and was pleased to see two companies doing R&D. In addition their money control was very good and he hoped they now realised how important cash flow planning is. However, they did not do very well on grants, there was nearly £100,000 available to each team in the form of employment grants, training, R&D, energy, school leavers etc. etc. (from the government and the EEC) but none of them had asked. There were rumblings and looks of disbelief from the teams - "We never thought of that" comments. They had all forgotten about insurance until he had threatened them with sabotage.

P then ran through the good ideas they had eg. Employers Federation, which was important for combating TUs and he thanked the organiser for working so hard. The others applauded.

Also P had liked some of their ideas for increasing sales but they had forgotten about improved packaging - it increases sales by 15% (in the game). P then handed over to S (he had taken 15 minutes) stating that there was 7 minutes until coffee break, S was not pleased.

S ran through the share prices of the companies and stated which were a good buy on the stock market. Adding that some companies had let themselves become run down and had not yet bought a third production line and gave his 'tips' for companies which were likely to succeed in the future. He then broke for coffee, resuming after 12 minutes.
S described the annual growth chart saying that the target should be around 200,000 units but two teams had gained a much higher rate (A had 300,000 and D had 250,000) which was very impressive and very surprising. The other teams had also done very well, with every company showing good profits, some should be paying a dividend to their shareholders soon.

Then followed an OHP of the balance sheet and what it shows, and S ran briefly through individual teams financial performances in terms of borrowing and repaying rather than strategy. After this S talked through an OHP of where teams had got the finances from ie. shareholders, capital, retained profits, growth. He then displayed another OHP of where the money was being used ie. new product lines, investments etc.

S accused them of some end gaming ie. trying to maximise cash in order to win the game - which may have disastrous effects on the companies' long term position. He explained some of the likely consequences of their 'end gaming' and what each team should be planning to do if the game was to go on. He then tackled individual team's weak and strong spots, for instance two teams had very little stock - they answered this was deliberate end of game strategy - because it gave them more capital for scoring purposes. One team seemed to be having more arguments than the others, said P, they seemed surprised when they made sales - they said it was the opposite. At this point S put up an OHP (below) and discussed each point.

**Main Reasons for failure of businesses**

<table>
<thead>
<tr>
<th>No or insufficient profits</th>
<th>Insufficient funds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Causes</strong></td>
<td></td>
</tr>
<tr>
<td>failure to sell enough</td>
<td>No profits</td>
</tr>
<tr>
<td>excess costs eg. overtime, advertising, loans</td>
<td>Spending too much fixed assets, dividends etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>What to do</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce costs - cuts in admin and adverts</td>
<td>profit planning</td>
</tr>
<tr>
<td></td>
<td>cash flow planning</td>
</tr>
<tr>
<td></td>
<td>cash budgeting</td>
</tr>
</tbody>
</table>
He concluded, after 23 minutes, that there were very few instances of teams going wrong during the game, well done.

P took over and instructed them not to take notes because there was a handout and displayed an OHP of the promised handout (appendix 9.1). He briefly talked through what they had learned from the game and about each 'box' stressing the need for market research, balancing costs, advertisements etc. and most important cash flow control and anticipating crises (the latter he related to past coursework). He also reminded them that luck plays a part in business and ended there. There were no questions from the students.

9.4 Informal discussion with and among game participants

I remained with my team during coffee breaks where most of the conversation centered upon my research, other games I had attended and what I was going to do when I finished my doctorate. There were also some remarks made by other team members about this game and how well or badly they were performing or coping with the complexities, but little discussion of tactics or strategies.

At lunch however I ate with one or two members of my team and several other students from the other teams. On these occasions they were mostly enthusiastic about the game despite the fact some were having difficulties. However they did not discuss strategies, but explained where they thought they had gone wrong. Some students sought me out at odd moments to tell me privately what they thought about the game, these students were much less enthusiastic, tended to be younger short service officers, who felt that the senior officers were running the game, and often doing it badly. Hence they felt they were gaining little from the experience.

During the game my team discussed strategies, rarely disagreeing except when Rhino 2 wanted to spend more money, but as I said before this was good natured.
9.5 Tutor comments

I was to have interviewed the game administrator P prior to the game but he felt it was unnecessary because he gave a brief history of the game and his reasons for using it in the introduction (see 9.1). He was extremely cheerful throughout the game, playing his various roles of saboteur, press scaremonger, cartel smasher with obvious glee. He told me he was happy with the way the game was progressing and felt it was a reflection of his organising abilities - he was probably right, the game progressed very efficiently and to the satisfaction of most of the participants. I did not talk to him or the other tutors very often during the game, because they were busy and also to gain the students trust.

9.51 Tutors questionnaire response

I gave P an open ended questionnaire on the first day of the game and he completed and returned it after the game. He uses gs as a teaching medium and to monitor what students have learned from his lectures, to consolidate the lecture material previously received, to break up lectures and to give students an opportunity to put theory into practice.

From this game he expected the students to learn "the most difficult aspects of running a business" which are:

a, working as a 'Board' to achieve a common aim ie Profit
b, to achieve the successful BALANCE (between sales, production and finance)

He also expected the students to achieve a full understanding of business thinking and methods. When asked how he expected the students to react to the game he thought they should learn to be aggressive in thought. He felt that the competitive element was essential to the game but to him personally it was unimportant. Finally he felt there were no drawbacks to the game bearing his stated objectives in mind.
9.6 Feedback sheet results

9.61 Administration of feedback sheets

I distributed the revised (by P) feedback sheets (appendices 9.2 and 9.3) to all the students after the debriefing and after L had given them a short address in which he asked the students to fill them out and stressed that their replies would be confidential. Because the students were at the end of the course and were leaving for different parts of the country the following day I gave them all a 'freepost' envelope in which to return the feedback sheets. I received 21 replies out of 36 without a reminder (which was impossible for security reasons).

9.62 Analysis of feedback sheets

i, Learning

Only one person stated he did not learn anything during the game and he was the student who was frustrated at not being able to influence the teams decisions because of his low rank. One student stated he had learned how to play the game (among other things).

The vast majority of the students (14) felt they had learned about various aspects of maintaining their cash flow ie. forward planning, borrowing, balancing sales and costs and how important this was if a business was to survive and hopefully expand.

Other reported learning included aspects of sales (3), and marketing (5). Some students report learning that balancing functions in a business was essential (3) as well as communication (4). One student now felt that it was vital that managers work as a team. Four students felt the game had consolidated or linked their previous learning from the course. Two reported it had made them realise how little they had remembered from the course.
ii. Feelings

This group were very enthusiastic about the course and the game. Five students said they enjoyed the game. Seven felt it was a very useful experience. Only one student reported being frustrated by his teammates' decisions and his inability to change them. One student reported that some people got very worked up.

I would say there were tensions within teams over decisions and strategies, especially in teams who did poorly to start with. However these tensions did not detract too much from the overall enjoyment and learning.

iii. Strategy

This group of students had the benefit of playing a test run before beginning again on the national product launching, many of them had learned from earlier mistakes and had a logical workable strategy to start the second round with. Others however did not learn from their mistakes and either did not have a strategy at all (4) or had one that did not work (6). The variables they considered (with different degrees of success) were:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Count</th>
</tr>
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<tbody>
<tr>
<td>Maintaining cash flow</td>
<td>8</td>
</tr>
<tr>
<td>Sales forecasting/maximising</td>
<td>8</td>
</tr>
<tr>
<td>Slow steady growth</td>
<td>3</td>
</tr>
<tr>
<td>Growth</td>
<td>2</td>
</tr>
<tr>
<td>Survival then profit</td>
<td>5</td>
</tr>
<tr>
<td>Maximum production</td>
<td>2</td>
</tr>
<tr>
<td>Advertising</td>
<td>2</td>
</tr>
</tbody>
</table>

Only one student claimed their team calculated their break even point (the actual cost of production and sales - so they could determine the price they had to charge in order to make a profit). Four students admitted they did not calculate this, so were selling below cost price some of the time. Only two students considered what their competitors might be doing (rather surprising for military men). One student claimed they
spent too long trying to think up clever ideas.

On the whole the students did utilise their real life knowledge, and coursework when planning their strategies. Most of them had a strategy to start with, though some changed it in the light of their poor results and the guidance from the teach in. Only one student reported that "Every situation was examined as it arose" which I take to mean that they reacted to poor results and kept changing strategies.

iv. Evaluation

One of the questions P wanted me to put on the questionnaire was about whether the game was a summary of the course, 15 students said it was, 2 said it was not and 3 said it was not a complete summary.

Most of the students praised the game. Seven felt it was a useful/valuable /well constructed game. When asked what was most useful about the game 5 students replied the opportunity for the practical application of previous learning. Five found the emphasis that was placed upon financial control, forward planning, cash flow etc had helped them greatly. Three students thought it was realistic and two commended the idea of a test market. One student felt the briefing was not adequate, another praised its thoroughness. Contrary to other games no one complained about lack of time for decision making and two students felt that the insistence on getting decisions in on time was helpful, it made them concentrate upon the important areas.

Six students criticised the abrupt ending, claiming it was unrealistic and encouraged teams to make decisions for short term gain, which would be disastrous in the long term. Three students did not like the extraneous factors ie. threatened strikes, sabotage, insurance etc but one student did like them. Only one student complained they did not have enough advice during the game. Five students felt they would have learned more if they could have swopped roles during the game. There were a few other grumbles from individuals about the
game model which really stem from their lack of understanding rather than any faults in the game.

v. Competition

All 21 students said that they had enjoyed the competitive element or that it added 'spice', incentive etc. to the proceedings.

9.7 My evaluation of the students performance

This group of students were mostly highly committed to the course and the game. The vast majority of the senior officers were most enthusiastic about the whole five week course. The younger officers were slightly less so, some felt the course was too easy for them and the game was being dominated by the senior officers. In addition some students were absent from the game for several hours because of job interviews, in certain cases this meant they were relegated to the position of 'gofer' during the game - so they were not seriously missed when absent.

There were two Rhinos in my team and it would seem from some of the comments after the game that some students withdrew in spirit from their teams. The usual cause for this was because they disagreed with the teams strategy.

Most of the students were competitive, wanting to win and enjoying the competitive element. However this did not lead them to make too many rash decisions. Their unsuccessful strategies seemed to be a result of ignorance rather than taking gambles and risks. Most teams seriously considered some or all of the factors involved in running a business before working out a viable strategy. If this strategy proved unsuccessful (or in the light of the information received from the teach ins) they reviewed it. Some admitted they could not work out how certain variables interacted with others.
9.8 My evaluation of the game

This was one of the best games I have observed. The introduction was comprehensive and highlighted the reasons for playing the game and the potential learning that could result from it. It also linked the game to the rest of the course and urged the students to make use of what they had learned.

The waiting periods between decision making were not over long and students were kept busy by P's little extras eg. strike threats, health warnings. etc. P insisted upon decisions being given in on time, something which did not worry the students and greatly helped the smooth running of the game.

The tutors were available for consultation most of the time and gave advice when requested. S as usual patrolled the room giving advice and posing questions when he felt it was necessary.

The teach ins and the debriefing were illuminating and comprehensive. In the debriefing individual team performances were discussed at length and learning was linked to the course and to real life. The teach ins were excellent, they gave the teams a chance to rethink, to realise what they were doing wrong and to correct it. This was most probably very beneficial to their learning because they had an opportunity to change their tactics and see them work, rather than being told after the game what they should have done.

9.9 Conclusion

This game was a great success. Though competitive, the students did not allow this to dominate. They tried to make logical decisions based upon real life and their coursework. Most of them reported a fair amount of perceived learning. Much of the credit for this must go to the teaching staff for the volume and quality of their input. The various teach ins ensured that those teams who were in danger of becoming confused were put back on the correct path. The game highlighted the beneficial effects that game administrators
can have upon student learning and approach to games. In addition, I was able to observe two Rhinos in my team and to find out more about this approach.

Résumé

This game illustrates that more mature students tend to adopt a learning approach which is similar to the findings of other games (PLa,BT). It also shows how beneficial tutor intervention can be for student learning. I was particularly impressed by the teach ins which helped many students to concentrate on the relevant issues. Happily competition did not override common sense and whilst the majority of students enjoyed that aspect of the game it was kept at a sensible level, much to the credit of the tutors and students.
## Chapter 10

### Research Findings

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10.0 Introduction

Throughout my research I have attempted to concentrate upon several key areas:

1a, What influences students to perceive games in the way they do?
1b, How do such perceptions and expectations influence their approach to games and simulations?
2. What are the effects of competition upon learning?
3. What kinds of approach do students adopt to games and simulations?
4. How do these factors and approaches affect students learning?
5. How can tutors influence students approaches to games and simulations?

I will describe my findings (which are drawn from observations, interviews, and questionnaires) in each area, giving my explanations first and then illustrating them with representative quotations from student interviews or questionnaires.

10.1 What influences students perceptions of games and simulations and how does this affect their approach?

There are several influences upon students perceptions of and expectations from games.

a. Whether they have played an educational game before and their experiences during it.

The quotations below illustrate three different views of students who had played a game before. The first is sceptical of the game, he went on to adopt a competitive approach and yet reported learning a great deal. The second also adopted a competitive approach, gambling and guessing at decisions, (as he had done the day before) losing the game and reporting very little learning. The third student reports learning the same concepts that he had learned when he played the same game the
"I did not expect too much from the game, as I had played other games on other courses, and felt that I did not learn too much from them. Therefore, I probably entered the game with a slightly negative attitude." BT4q

"The day before I won and I was really looking forward to it" BS1i

"My first reaction was that this is 'silly' another one of those management games. Having come across it before I had preconceived ideas about how to approach it." TG 3q

Additionally in Case study LUa a student who had played a game before assumed that the previous game's winning strategy would prove successful if applied to the present game. In fact he was wrong and reports learning very little. In PLa the students had played a game shortly before and most of them were fairly cautious, having learned that gambles and risky decisions were not the way to run a business. However these students quickly became bored with such a similar game coming so soon after the last one.

b, Their age, maturity and experience ie. their ability to take the game seriously or to see the relevance of it. (see for example case studies LUUb and SM).

It appears that older, more mature students, usually take the game more seriously and approach it as a learning device. This may be because they have more experience and knowledge to draw upon to help them in uncertain situations such as these. Or it may be a combination of their more mature approach to most situations and the (usually) more informative introductions they received.

"There was an unnecessary element of competitiveness between the 'younger' element of the players" BT1 1q
"I was involved in the TU dealings...(which) progressively tended to be of a very childish nature. The TU being there just for the sake of arguing, not really having the general goals they were supposed to have in real life" LUb 33q

"The game brought out the inexperience of those playing and so at times resembled a boys playground in a school" LUb 35q

"It is a game. It cannot be realistic as there is no real loss if you lose. Who needs to compromise in that situation" LUb 38q

c. The game administrators introduction (or lack of it).

After some game introductions students were unsure of the purpose of the exercise. This led not only to confusion but to competitive and non academic behaviour ie. many students resorted to playing the game as a game (see for contrast LUb and SM).

"I think that we should have had more participation of tutors and more clear explanation of what was expected from us. These problems generated a lot of confusion among the students..." LUb 43q

"I felt that as we were unaware of the exact purpose of the exercise, then just enjoy it at its face value" TGa 11q

"We had little explanation of the game characteristics and what was really expected of us". LUb 15q

"The 'seriousness' of the game was not emphasised by the tutors, neither by the group, and as such many uncoherent actions and attitudes were taken". LUb 37q

d. Uncertainty and apprehension about the game and what is expected of them, plus lack of guidance during the game and
inadequate debriefing (see for example LUa and PLb).

"The introduction consisted solely of an explanation of the rules, there were no guidelines on team organisation or business principles either before, during or after the game and it does not appear to have mattered to the teaching staff one way or the other whether individuals played or did not, or how well any of the teams performed." LUa 3q

"The game began with some slight tension over what was expected and the assignment of roles." TGb 10q

"The exercise seemed to be a lot of good fun for those of us taking part, and I felt that as we were unaware of the exact purpose of the exercise, then just enjoy it at its face value." TGa 11q

"...the actual lay-out of information could have been more clearer. I doubt that in a real life situation such lack of figures and information would be possible." LUb 33q

"I feel that intervention by tutors to prevent any participating group adopting a stance which would close down opportunities for the other groups to practice these management skills would be very desirable." LUb 36q

"I think that the 'feedback session' at the end didn't explain a lot of things. (It wasn't really a feedback session). I was expecting an accurate analysis of the groups behaviour and results obtained and nothing happened." LUb 43q

"The game does need an analysis poised afterwards so people can learn from it ie. what were the best strategies, main pitfalls. Otherwise the educational factor is lost and little is learned and it becomes just a 'game'.." LUb 40q
These four factors combined with the fact that the game was competitive led some students to play the game to win. The next section describes what effect competition had upon the students.

10.2. What are the effects of competition upon learning?

In the competitive business games I have studied (especially where success is measured by the greatest profits) a sizeable majority of students understandably want to win. These students often make irrational decisions with short term effects, and they often become dissatisfied and even apathetic or frustrated when losing.

Why does this happen?

They make an initial decision based upon illogical reasoning, then, when the results arrive and are poor, they immediately change their strategy and try something else and will often continue to do this throughout the game. The result of this behaviour (apart from the frustration of not being able to improve their scores) is that they cannot determine cause and effect, and so fail to comprehend the underlying principles of the game. When this happens they report learning very little during the game.

So much for the losers, but what about the more successful team or teams? The winning team in particular may become smug and self satisfied. They do not question their decisions or the inadvertent help they may have received from other teams. They begin to believe that all their decisions were good, due to their natural intellect. They often do not pay too much attention to cause and effect when doing well. They may also become bored if there are no serious 'rivals'. These factors may also result in the 'winning' students learning very little during the game.

Winners versus losers

There are indications in my research that some losers may in
fact learn more than winners. Perhaps because losers need to try more tactics and visualise alternative scenarios in order to improve their position. On the other hand, some losers just give up trying or they rationalise their poor performance as being a fault of the game, or the fault of other students or of the tutors.

Losers do tend to reflect upon their performance more than winners ie. 'this is what we should have done', which may facilitate learning. However some losers feel learning through their mistakes is unnecessarily painful and frustrating and not a very fruitful way to learn. For illustration, please see below for quotations from students:

"A slower and more academic approach to the game would have suited me better - some decisions were taken just to score off the other team rather than on the basis of 'Good Business'." BT 1q

"...the fact remains that my dominant feeling with regard to the game was of frustration. Thus I really didn't have any learning experiences during the game. I can only imagine these arising if one's group was powerfully placed, dominating the market." LUa 2q

"Once we started to lose both profit and confidence the game deteriorated and we ended up with little time to make our more and more rash decisions." LUa 1q

"The thing that did both construct and destroy learning was the prize - striving for that instead of the challenge of making the "business" work. We started off with a too short term idea and all the time were interested in profit instead of longer term R&D and utilising our resources - but if we had been successful right from the start I wouldn't have even thought of different approaches and would have been content to rise on the crest of success." LUa 1q

"At times extravagant and ridiculous directions were
c ·templated and even seriously investigated. The group continually chose to ignore previous decisions on strategy and common sense positions and almost lemming like would dash to the latest precipice which attracted them." LUb 35q

"(Competition) was harmful to a great extent disintegrating the objectives, strategies and duties of the individual departments. Planning, control, even objectives were disregarded in order to win. Some lost interest in the game on the 2nd day when they knew they were 'losing'." PLa 7q

Negative learning experience: "This was towards the end of the game, the last three quarters, when we could do nothing to improve our position because we had gone beyond the point of no return. We just carried on playing to complete the game."LUa 12q

10.3 What kinds of approach do students adopt to games and simulations?

During LUb I noticed different students adopting several different approaches and reporting different levels and kinds of perceived learning. This led me to concentrate upon exploring and developing models of student approaches to games. In retrospect these approaches could also be seen in the earlier games that I had observed but I had been too absorbed in the effects of winning/losing/competition to appreciate their presence.

The specific approaches I have identified are:

Opportunist or Competitive

These students were easy to identify during the game by their behaviour and comments, their later questionnaire responses illustrate their approach further. This is the most frequent approach adopted by college students. They tend to treat the game as a game only, a challenge, and an opportunity to show their prowess by beating other teams. They play the game to
win, and in order to do this they will try out many tactics, rarely basing their decisions on real life considerations, theories or past coursework. They change their strategies when results are bad, gambling and rarely reasoning out their decisions and the implications. As the game proceeds, students become confused and guess at courses of action, resorting to trial and error when results are bad. Not surprisingly these students report learning very little from the game and much of their learning is confused.

"Our group adopted 3 to 4 different lines of action and a set of unfavourable results was followed by an immediate change in strategy. This rapid change did not allow the group to learn the effect of a particular strategy on the results." LUA 7q

"Our team started, more or less at random, with a high price strategy, and tried to maintain it during the first few periods of play. We were soon relatively successful and were happy to carry on without much regard for the other teams. When the going got tough we decided on some high odds gambles to win back the lead (no prizes for coming second). LUA 3q

"...we proceeded to build on a basically unplanned basis with little consideration of the factors we should have taken into account." TGA 3q

"We went for growth. We did not consider the cost/unit until reminded by the lecturer. We did achieve the strategy but luck played a part." SM 2q

Knowledge based strategy

Students using this strategy were easily observed during the game and their questionnaire responses added further depth to my observations. This is the most frequent approach taken by managers. These students saw the game as a way of learning or practising new skills, acquiring new concepts and facts, putting theory into practice or running a business without
real life financial penalties. Their strategies were guided by real life considerations, past course work and theoretical reasoning. When making decisions they usually stopped to think out a reasoned plan of action before submitting them. Their strategy is much more likely to facilitate learning and most managers do report some learning. However they may still be competitive and want to win. Therefore they sometimes fall into the trap of making short term decisions (to maximise profits) and then later of taking risks and gambles, if their results are poor, which may result in confusion, to the detriment of their learning.

"Before I came and had just read the handout I hoped to be in the company group to find out more about a company's relationship with TU's. Having been assigned to the Bank I expected to find out a bit more about how a Bank would assess a company's application." LUb 39q

"I expected to increase my knowledge of the functions of, and techniques used by the various sections of a company, along with the interrelationships between them." PLb 5q

"I expected a full understanding of a firms economic problem. Using discussion and evaluation of certain aspects of the problem I thought a hypothetical solution may arise for the problem." LUb 38q

What factors did you consider?
"Capitalisation on the knowledge of an area market sounded out by test marketing. The necessity to balance the sales and marketing effort to an economically achievable production rate. The need to maintain cash flow during build up." SM 22q

Skill specific

I observed a small number of students who approached the games as an opportunity to practice or acquire certain specific skills or knowledge eg. negotiation skills. However, though they sometimes admitted during the game that they had specific
aims, only one student exhibiting this approach completed my questionnaire. Therefore I am only able to illustrate this approach with one quotation.

"I expected to achieve some practice in negotiating skills and in chairing meetings. I felt it was also important to study how the group operated, looking out for stereotypes, and trying to understand the concepts behind a group working 'as one'. I did not expect to learn much about company finances or corporate strategy and saw the exercise mainly as an opportunity to develop interpersonal skills." LUb 36q

Rhino (Really Here In Name Only)

In the college games I have observed there are usually a number of students (approximately 15-20%) who 'opt out' either physically or mentally from the games (hence the term RHINO). Unfortunately it is difficult to collect data from these students because they usually do not want to talk about their reasons for leaving the game. Neither do they wish to fill in questionnaires.

I did manage to observe and question two Rhinos at the last game I attended (SM). The reasons they gave for their opting out may not seem immediately typical and a sample of two students is hardly representative. Nevertheless it may help to increase our understanding of this phenomenon. The first student did not contribute very much during the game because he felt that his opinions and suggestions would not be heeded by the team, because he was of a lower rank than the rest (this was an Armed Forces Senior Officers course). This opinion was echoed by other low ranking officers who also became frustrated because they disagreed with the team's strategy and were unable to influence it.

The second student opted out of the vast majority of the game because:

a, he did not agree with the team's strategy
b, he was treating the whole course as a holiday
There are probably many students on other courses who also treat the course as a holiday which may explain some Rhinos opting out, especially where it is easy to do so eg. at undergraduate level. In general there are less Rhinos on management courses as opposed to undergraduate courses. This may be due to the greater commitment of the managers, their maturity, or their willingness to see the relevance of the game to their work. But it may also be simply because they are obliged to stay because it is residential, or because they think they are being assessed. The other explanations that I can offer for a Rhinos' behaviour are based upon my observations. These explanations represent a combination of such factors as - they do not like games, or the other team members, or the team strategy, they can not communicate easily, they find it difficult to work in groups etc. Again it is difficult to ascertain what they learned from the games because they are rather uncommunicative.

Potential Rhino?

"If anyone in the group does take a strong, heavy handed approach and is determined to see things as a 'real-life' situation I find I withdraw from it completely." TG 7q.

Lastly there are a group of students whom I have labelled as taking a confused approach, they are difficult to identify early in the game and I only have a small amount of data on them.

Confused

These students are unable to cope with the mechanics or the concepts involved in the game. They may therefore take a conservative approach ie. do nothing or very little to see what happens, or they may take an opportunist approach taking risks and gambles and changing strategies when the results are bad. They report little learning and much confusion.

"We spent most of the first session (by which I mean the period in which a decision was needed) arguing about how
we should go about filling in the form.... with about five minutes to the deadline, we still had reached no conclusion. Eventually we made a rather neutral decision to see what would happen." LUa 7q

10.4 How do these factors and approaches affect students learning?

It has become apparent during my research that there is not a simple relationship between winning/losing and learning. Neither does it necessarily follow that someone adopting a certain approach to the game will achieve a specific kind of learning. Although it will most probably have an effect there are other variables which may influence their learning.

In order to make these interrelationships clearer I have designed a model and provided a detailed description to explain each stage (see overleaf).
Model of a competitive Business Game

Student approach, aims and strategies

To acquire specific skills. SKILL SPECIFIC STRATEGY 1a

To learn from game. KNOWLEDGE BASED STRATEGY 1b

To win. OPPORTUNIST STRATEGY 1c

Tutors aims & introduction 2

Clear introduction 3a

Problems of understanding 4

Tutor responds 5a

Problems of morale 6

Good experience 7a

Debriefing 8

Skill specific learning 10a

Bad experience 7b

Effect of competition 9

Confused learning 10c

Good learning 10b

Unclear introduction 3l

Tutor does not respond 5l

Key ——- most likely path & consequence

— —— less likely path & consequence
10.5 Model of a business game

1 Students approach

Students approached the games in a variety of ways. Some were unsure of the purpose and apprehensive about what was required of them. Other students who had played games before expected this game to be similar in some ways to their previous games - they were not always correct. In addition some students who had played similar games (and some who had not) felt the game may turn out to be a waste of time, or a little light relief from lectures.

There were students who saw the game as a game only, a challenge, an opportunity to show their prowess by beating the other teams (1a on model). This approach contrasts with students who saw the game as a way of learning or practising new skills, acquiring new concepts and facts or of running a business without real life financial penalties (1b). Finally there were a small number of students who approached the game as an opportunity to practice or acquire certain specific skills or knowledge. Their approach and pursuance of their aims seemed to be to the exclusion of most outside influences eg. the tutors, other students (1c).

2. Aims of the tutor

Simply whether the tutor running the game made clear to the students his aims for the game, ie. why he was playing it and what he expected them to learn from it. The aims could be conveyed to the students in a variety of ways, written on the pre-game handout, verbalised before the game with or without OHP slides or printed sheets.


Introductions to the games varied enormously in terms of time and information. Most tutors gave pre-game handouts to the students several days before the game was played. However, many students failed to read them. Some tutors took this into account and gave very detailed instructions in their
introductions but most did not do this. For the purposes of this model an adequate introduction (3a) is one where students know enough to begin playing the game, with reasonable confidence that they will not bankrupt their company immediately, and with a reasoned and realistic strategy. An inadequate introduction (3b) is one where students do not know where to start, do not understand the decision sheets, can only guess at appropriate action or take gambles in order to win.

4. Problems of understanding instructions or mechanics of the game

Almost all students at some time in the game (usually several times) have problems in understanding the instructions or rules and their implications. Very often students also have difficulty in understanding the implications of their decisions (especially when the game is interactive and other teams' decisions also affect them) and thus they cannot comprehend why their results are good or bad.

5. Tutors response to problems

a, Tutors were available for consultation and help and kept a careful check on the teams' results. They queried mistakes on decision sheets and strongly advised or even insisted that students rethink their strategy immediately and keep their financial accounts in order.

b, Tutors were available for consultation and help with problems but students were often reluctant to approach them, and tutors rarely approached the students unless asked.

6. Problems of morale

Naturally many students became despondent when they were confused about decisions and results. Many losing teams became apathetic when they could not improve upon their position. In games where the tutors were actively involved with solutions to problems the confusion was alleviated and
minimised, and so the students' morale suffered less. Similarly losing teams that were actively helped by tutors did not become so apathetic because they were offered ways of overcoming some of their problems (and of not losing quite so spectacularly).

7. Students evaluation of the experience

a. Many students who received active help from tutors throughout the game found little fault with the game, tutors or other students and found the experience rewarding. Some however found the experience of learning from their mistakes frustrating and regarded the game and the tutors less favourably.

b. Most students who had little active help from the tutors and who had played the game to win, or by guesswork found the experience unsatisfactory to varying degrees. Many found fault with the game, tutors and the students. Inspite of this many students found it enjoyable as a social or 'getting to know you' exercise.

8. Debriefing

A good debriefing could salvage some learning even if the students had a bad experience of the game. However, very often the debriefings were poor, hurried affairs and did little to facilitate learning or clear up misunderstandings.

9. Effect of competition

Please see earlier in this chapter (section 10.2) for more details. Suffice it to say that excessively competitive behaviour led to risky and illogical strategies which very often resulted in little learning and much confusion.

10. Learning

a. Not surprisingly those students who had been actively helped by the tutors report more perceived learning than those
who received no such help. They report (in varying degrees) learning facts, skills, and in some cases receiving a good overview of how a business works.

b. Many of the students who had little active help from tutors report that in their perception they had learned very little. Some reports about their learning are very confused, but some of these students did learn specific facts and skills.

c. The small number of students who had specific learning aims during the game seem to be relatively unscathed by the lack of help from tutors. These students did suffer problems of morale but generally reported that the experience was worthwhile, and that they perceived they had accomplished their learning aims at the end of the game.

10.6 How can tutors influence students' approaches to games and simulations?

The model highlights the need for tutor involvement before, during, and after the game if students are to gain the maximum benefit from it. This tutor involvement could take several forms but its purpose should be to curb excessive competition between players and to guide them towards learning.

Influencing students towards learning and away from competition

a. Before the game, both in the handout and the introduction tutors can stress that the students' main objective should be to learn. Winning is only of secondary importance.

b. Again in the handout and introduction the tutors should state explicitly their reasons for playing the game and what they consider should be the learning objectives of the students, something which is rarely done. In this way students will have some idea what is expected of them and what they may learn from the game.

c. It may be helpful to ask students to write down their
companies' (teams) objectives and how they intend to achieve them before play starts, so that they can remember their original goals and strategy for longer than one round of play.

d. During the game tutors can temper some of the excesses of competition by advice, questions, criticism or even outright refusal to accept some decisions. This point may be contentious but I believe that active tutor involvement is crucial to learning and for combating confusion and apathy.

e. I would suggest that it is not a good idea to put up scores, profits, share prices etc. on a board every few periods since it encourages competition and can be very demoralising for the poorer teams. It is better by far to have the figures hidden in the accounts, which could be calculated by the more able teams.

f. Tutors may like to insist upon teams keeping a written record of their decisions and the reasons for making them. Having to think things through and put them in writing may curb some of the over enthusiastic and very risky decisions.

g. Halfway through the game there should be a 'teach in' to draw the students attention to the variables that they should be considering eg. break even points, sensible advertising expenditure. After this the students can put their new knowledge into practice for the remainder of the game, which should facilitate learning more effectively than merely telling them where they went wrong at the end of the game.

h. Conscientious debriefing. This has been said before (Taylor and Walford 1972, Morry Van Ments 1978, Brand and Walker 1980, to mention but a few) but the importance of debriefing cannot be stressed often enough. So much learning can be encouraged, salvaged and reinforced during a good debriefing. But unfortunately debriefings are often hurried affairs, when people are tired and irritable and are trying to rush off for the 2.10 from Paddington. I would like to stress firstly, that each team should be allowed to comment on and be commented on by other students and staff. It is not enough
for the tutor to make a few face saving remarks to the losers eg. "Oh well, at least you didn't go bankrupt until period 7."
Then to concentrate only on the winners and their strategy.

Secondly, the original learning objectives should be restated with an illustration of how these may have been achieved during the game and linking this learning to past or future work, learning or experiences.

10.7 Theoretical explanations

At the beginning of this research I decided to concentrate upon the cognitive learning that students achieved from games. I became worried quite early on to discover that in some games the students appeared to have learned very little. I believed that this was partly because they approached the game as a game and played to win. They did not seem to relate the game to their coursework, theories or real life. I think this can be partially explained by the fact that often (eg. in Case Studies LUa and b) the students knew very little about running a business or the concepts involved in the game. This was due to the fact that it was the beginning of the course and most of their previous studies had been in engineering and physical sciences.

"...the acquisition of new information is highly dependent on the relevant ideas already in cognitive structure and that meaningful learning in humans occurs through an interaction of new information with relevant existing ideas in cognitive structure" (Ausubel 1978.75)

They may therefore have resorted to what they did know about - which was playing games - and played the game to win. This was highlighted when their overall competitive approach was contrasted with PLb and SM where the students overwhelmingly adopted a learning approach. These students were more mature and had management experience but they also had the benefit of playing the game at the end rather than the beginning of their course.
However I believe that all students may be greatly assisted at the beginning of the game (at whatever stage in the course) by advance organisers (Ausubel 1978). These should enable them to relate the new ideas/problems to what they already know about the subject rather than to what they know about games. Or to provide a base on which the new ideas can be 'anchored'.

"Advance organisers should serve to provide anchorage in cognitive structure for new knowledge. If relevant concepts were not available, the advance organiser would serve to anchor new learning and lead to development of a subsuming concept which can function to facilitate subsequent relevant learning. If appropriate concepts were already available in cognitive structure, advance organisers could serve to link new learning with specific, relevant subsumers." (Novak 1977.78)

Thus students often need help i.e. advance organisers in order to bridge the gap between what they know and the new concepts they encounter in the game. Ausubel describes advance organisers as providing:

"relevant ideational scaffolding, enhance the discriminability of the new learning material from previously learned related ideas, and otherwise effect integrative reconciliation, generality, and inclusiveness that is much higher than that of the learning material itself. To be maximally effective they must be formulated in terms of language and concepts already familiar to the learner and use appropriate illustrations and analogies if developmentally necessary." (Ausubel 1978.81)

In other words advance organisers should be couched in terms already familiar to the student, and should provide an overall view of the subject matter. They should also make the students aware of the differences (and similarities) of the new concepts from those they already have, in order that the students will be able to understand the new concepts and link them to existing ideas. Ausubel points out that advance
organisers are not to be confused with ordinary introductory overviews, which are what most students receive before a game. These he says are:

"typically written at the same level of abstraction, generality, and inclusiveness as the learning material and achieve their effect largely through repetition, condensation, selective emphasis on central concepts, and prefamiliarisation of the learner with key words..." (Ausubel 1978.81)

In business games however they are even less illuminating and tend to be merely instructions about the mechanics of the 'company' and how to play them. Even these instructions are compartmentalised into different functions eg. advertising, industrial relations, production. Thus the student rarely, if ever, receives an overall view of the company/subject before playing.

During the game this compartmentalisation of functions should decrease and students often report learning about the interdependence of functions. However they sometimes have problems of understanding cause and effect - when their decisions do not produce the expected results. This may lead to confusion because their previously learned concepts do not apparently seem to work. Often at this point they need help from the tutors to reconcile their difficulties. I have suggested holding a teach in half way through the game for this express purpose. Ausubel suggests using (remember he is basing most of his ideas on 'traditional' teaching methods) comparative organisers during the course of a learning task:

"(Comparative) organisers may also be expressly designed to further application of the principle of integrative reconciliation. They do this by explicitly pointing out in what ways previously learned, related ideas in cognitive structure are either basically similar to, or essentially different from new ideas and information in the learning task.... In addition, organisers increase the discriminability of genuine differences between the
new learning materials and seemingly analogous but often conflicting ideas in the learners structure". (Ausubel 1978.81)

Thus tutors can point out where students 'textbook' knowledge, eg. a reduced price should lead to a subsequent rise in sales (cet par), may not be enough in this case to produce the expected results and has led to confusion. Instead students need to be reminded that they should consider their competitors' prices, customers' tastes, inelasticity of demand etc. In this way students can further their knowledge of the subject by understanding the apparent contradictions in the game rather than rejecting large areas of it (as some appear to do) as being 'unrealistic' because it did not produce the results they expected.

At this stage it may be helpful to consider Ausubel's (1978) view of the processes that students go through in order to learn meaningfully (see Ausubel 1978 or Novak 1977) and apply them to learning from games.

a. "an implicit judgement of relevance is usually required in deciding which established ideas in cognitive structure are most relatable to a new learning task".

As I suggested earlier, students need advance organisers to help them to link what they know about the subject to the game. But students also need to see the game as relevant ie. something to take seriously because it will be useful to their learning. Often students fail to do this, and once again advance organisers may help.

b. "some degree of reconciliation between them (new ideas and established ideas)...particularly if there are discrepancies or conflicts."

One of the problems of games is that there is often very little time to spare between and during decision making to make the necessary links between new and established ideas. This is why I recommend that the tutors should play an active
role during the game in order to help establish the linkages and to clear up possible misunderstandings.

c. "New propositions are customarily reformulated to blend into a personal frame of reference consonant with the learners experiential background, vocabulary and structure of ideas".

Lack of time during a game may also prevent this from occurring. But more importantly, for those students who do not have the necessary background, vocabulary, ideas etc. without help from the tutor they may be unable to assimilate the new ideas, and will probably become confused apathetic and frustrated.

d. "If the learner, in the course of meaningful reception learning, cannot find an acceptable basis for reconciling apparently or genuinely contradictory ideas, he or she is sometimes inspired to attempt a degree of synthesis or reorganisation of his or her existing knowledge under more inclusive and broadly explanatory principles". (Ausubel 1978.77)

Note that Ausubel says the learner is sometimes inspired to attempt a degree of synthesis etc. In games and simulations students are often so uninspired ie. frustrated or confused, that they give up and learn very little. Some however do manage to learn meaningfully from them.

If students are confused and demoralised at the end of the game their learning can be greatly helped by a thorough debriefing. This 'reconciles' their conflicting ideas and encourages them to utilise their new knowledge.

Novak warns that:
"educational practices that do not lead learners to grasp the meaning of the learning task usually fail to give them confidence in their abilities and do nothing to enhance their sense of mastery over events". (Novak 1984.xi.)
He then adds:
"educational programs should provide learners with the basis for understanding why and how new knowledge is related to what they already know and give them the affective assurance that they have the capability to use this new knowledge in new contexts."

(Novak 1984.xi.)

Thus I believe the debriefing should not only clear up any cognitive misunderstandings or lingering personal antagonisms and frustrations, but should also reassure students that the 'new' ideas are relevant to their work or studies, and that they are capable of putting these new ideas into practice.
Chapter 11

Conclusions and Suggestions for Future Research

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11.0 Conclusions

I will briefly summarise the main points in this thesis and the conclusions that may be drawn from them.

A. What influences students to perceive games and simulations in the way they do? How does this influence their approach?
   a, their prior experience of games may influence their strategy, motivation.
   b, their age, maturity and experience in general may influence their ability to take the game 'seriously', or to see the relevance of it.
   c, the game administrator's introduction may leave students confused and unsure of the purpose of the game and how to approach it.
   d, uncertainty about what is expected of them may lead to inappropriate decisions and behaviour.
   e, lack of guidance during and after the game may leave students apathetic, frustrated or confused.
   f, competition - see below.

B. What are the effects of competition?

   a, students want to win, they may make irrational short term decisions to do this and become confused and frustrated when losing.
   b, poor results lead to a change in strategy, and this often results in the students being unable to determine cause and effect leading to confusion and little reported learning.
   c, winners may become self satisfied, they may believe that all their decisions are good and pay little attention to cause and effect.
   d, losers may learn more than winners from their experiences, providing they do not become too apathetic or frustrated.
   e, some students may treat the whole session only as a game and so do not utilise their knowledge about the subject, but merely play to win.
Overall it must be concluded that competition is harmful to learning.

C. What kinds of approach do students adopt to games?

a, **Opportunist or Competitive**, students want to win, they do not utilise their knowledge of the subject, but take risks and gambles instead. They often have difficulty understanding cause and effect and become demoralised when doing poorly. They report little learning.

b, **Knowledge based**, students see the game as a learning device, they utilise their previous knowledge of the subject in order to make rational decisions. They may also be competitive. Most report some learning.

c, **Skill specific**, students have their own specific learning aims and they take appropriate roles and actions in order to achieve them. Most report accomplishing their aims.

d, **Rhino**, some students opt out of games probably because they do not agree with the team's strategies, other team-mates or because they do not like games, groupwork etc. It is difficult to ascertain what they learned.

e, **Confused**, these students are unable to cope with the mechanics or concepts involved in the game. They may take a conservative 'safe' approach or they may be competitive. They report little learning and much confusion.

D. How can tutors influence students approaches to games?

Tutors need to be highly involved before, during and after the game if students are to understand:

a, the purpose and relevance of the game
b, how to relate what they know about the subject to the game (so that they adopt a suitable approach)
Tutors also need to:
   a, discourage excessive competition between teams
   b, clear up misunderstandings during the game
   c, be sure that the debriefing not only resolves any
   confusion the students may have but also any tensions and
   antagonisms.

E. Theoretical explanations

I believe that the work of Ausubel(1960,1963,1968,1978) and
Novak (1977) on meaningful learning offers explanations and
solutions to the problems of competition and learning in games
and simulations.

   a, students often need advance organisers to help them
   relate what they know about the subject to the game
   b, students with little prior knowledge of the subject
   will probably need advance organisers which provide an
   adequate base on which to anchor the new ideas they
   encounter in the game.
   c, students may need help in linking the new ideas to
   their existing ideas, especially if they appear to be
   conflicting.
   d, Tutors can aid students' understanding by providing
   the necessary 'signposts', advice and debriefing.

Throughout this thesis therefore I have emphasised the effects
of competition upon learning and the importance of conveying
to students the relevance of the game to their work/studies.
I believe that tutors need to be actively involved throughout
the game if students are to approach and play the game
'seriously' and also to encourage learning and resolve any
confusions that may occur.

11.1 Guidelines for Tutors

I now wish to list (in one place) the guidelines gleaned from
three years research for administering competitive games.

A. Students may need help relating what they know about the
subject to the game, rather than what they know about games. This may be provided by advance organisers from the tutors - which either help bridge the gap between existing knowledge and the new ideas, or by providing a base to which to link the new ideas (for those students with no, or very little, relevant existing knowledge/experience).

B. Before the game, in the handout and the introduction, tutors can stress that the students' main objective should be to learn. Winning is only of secondary importance.

C. Again in the handout and introduction the tutors may find it helpful to state explicitly their reasons for wanting students to play the game and what they consider should be the learning objectives of the students. In this way students will have some idea what is expected of them, what they may get out of the game, and how it is relevant to their studies.

D. It may be helpful to ask students to write down their company's (team's) objectives and how they intend to achieve them before play starts, so that they can remember their original goals and strategy for longer than one round of play.

E. During the game, tutors can temper some of the excesses of competition by advice, questions, criticism, or even outright refusal to accept some decisions.

F. I would suggest that it is not a good idea to put up scores, profits, share prices etc. on a board every few periods, as this encourages competition and it can be very demoralising for the poorer teams.

G. Ask the teams to keep a written record of their decisions and their reasons for making them. Having to think things through and put them in writing may curb some of the over enthusiastic and very risky decisions.

H. It is desirable that tutors are available and appear happy to answer students' queries about the game. They can also help the students to avoid 'silly' mistakes and clear up
misunderstandings or establish linkages by judicious questioning.

I. Tutors may like to hold a teach in (comparative organiser) halfway through the game to draw the students' attention to the variables that they should be considering eg. break even points, sensible advertising expenditure. After this the students can put this new knowledge into practice for the remainder of the game. This should facilitate learning more effectively than merely telling them where they went wrong at the end of the game.

J. Suggestions for Conscientious debriefings

a, allow plenty of time.
b, allow all teams to comment and be commented on by students and staff.
c, help the students to 'get out of role' ie. to forget or dissolve disputes, personal antagonisms or failures.
d, discuss the possible lessons to be drawn from the game.
e, clear up misunderstandings and confusions arising from the game.
f, relate what they have learned to their work/studies so that they can see how it may be relevant and so that they can feel confident enough to use it in the future.

11.2 Suggestions for future research

It is easy to think of many related areas which I have not had time to explore over the past three years. I will however restrict myself to discussing five of these:

A. Additional research into student approaches, especially Rhinos and Confused.
B. The extent to which women may approach games differently from men.
C. The effect that group size and dynamics has upon students' learning from games.
D. Whether students might approach co-operative games
differently than they do competitive games.
E. Whether individual competition in games is helpful to learning (see Farran 1968 in 3.B)

A. Student approaches to games and simulations

I am fairly happy that my models of Competitive, Skill specific and Knowledge based student approaches are accurate and useful. However, due to the difficulties of getting Rhinos to co-operate and actually tracing Confused students during the game (in order to interview them), I feel that my models and explanations of these two approaches must remain tentative. I believe that it would be worthwhile to investigate these approaches in more depth, given that in college (undergraduate) games there are typically 15-20% who opt out and therefore probably learn very little. It would be helpful to know why this occurs and if anything could be done to encourage these students to participate in some (possibly alternative) way.

It would be nice to think that if tutors adopted my guidelines for game administration there would be no confused student approaches. However, in reality this is unlikely and therefore further investigation into this approach would seem to be desirable, in order that these students may gain more from their experiences of the game.

B. Gender differences in approach to games and simulations

When I presented a paper at the SAGSET 84 Conference one of the questions afterwards was whether I had seen any significant differences between male and female approaches to games. My answer is the same now as it was then; which is, whilst the women that I had observed appeared to be much more pragmatic than men, ie. wanting to get on with things, rather than holding tortuous arguments about the pros and cons of a certain action, there were so few women on these courses that I could not say with any assurance that there are significant differences between male/female approaches. Sadly there are very few women in management anyway; therefore future research
into this area may be hampered by the lack of available subject groups (at least in management training).

However research into this area would prove useful if it led to a greater understanding of how women learn from games and ultimately perhaps to guidelines for tutors to assist female students' learning from games. This would be particularly useful for an area such as Nursing studies where a great many games and simulations are used and the students are predominantly female.

C. Group dynamics

I did not have time to investigate the effects of group dynamics and size upon decisions/behaviour and student learning. However I did note that groups larger than six had difficulty in making decisions and had more 'non-participative' students (which was probably detrimental to their learning). I would suggest from observations and student comments that teams of four are the optimal size for satisfactory student participation and learning in most business games. There is some quantitative research currently in progress in Czechoslovakia* on the optimal size and composition of such teams, I look forward to their published findings. However I would suggest that research of a qualitative nature may offer greater insights into these issues.

I also noted that in most teams a small number of students dominated the proceedings and decisions. It would be interesting to conduct further research into this phenomenon to find out what effects (if any) there were on the dominating/dominated students' learning. It may be that the less forceful students' learning is hampered because they are unable to influence the group to try their desired strategies. If this is the case tutors would be wise to choose their teams with care, possibly putting known 'leaders' into one team or relegating them to less influential roles within the game.

Finally, a colleague suggested that the risky decisions and
gambles taken during competitive games may not be the result of a desire to win but be caused by a phenomenon known as 'Risky Shift' (Stoner 1961, Wallach et al 1962). This theory argues that groups tend to make riskier decisions after discussing a problem than the individual members would have done if they had made the decision alone. There has been a great deal of research into this phenomenon, but as far as I know there has been none carried out in the area of business games. It would be most interesting to see whether this theory is applicable to games. If so, students could be warned of the danger of risky group decisions and tutors could guard against it in much the same way as against competition.

* Dr. Borak at the Institute for the Development of Czech Higher Education. Prague.

D. Co-operative versus Competitive games

I have concluded that competition, if allowed to dominate in games and simulations, is harmful to students' learning. Instead of adopting my guidelines for combating competition tutors may instead consider using co-operative or multi-goal games i.e. Where 'winning' can only be achieved by co-operating with other teams, or where there are several ways of 'winning'. However, if part of the problem of learning from games is that students are only relating what they know about games (and not the subject) to the game, then playing any kind of game may have similar learning problems and consequences. Therefore I would suggest that research needs to be conducted into students' approaches to and learning from co-operative and multi-goal games in order that we can increase our understanding of students' learning from a variety of games and simulations.

E. Individual competition as an aid to learning in games and simulations

Farran's (1968) finding that 'underachieving' boys learned more through playing competitive games, when competing as individuals rather than between teams is very thought
provoking. However, I have been unable to test his findings during my studies because I have not observed (or even encountered) any business games where students compete as individuals. In most business games the variables are so numerous and the decisions so complex that teamwork is vital. In addition many business games strive to demonstrate the interdependence of functions and thus the desirability of teamwork for efficient business management.

As a teacher I used a board game (The Economics Game) where pupils competed as individuals and it was during this game that I particularly noted competitive behaviour. There are also many computer based games available where students compete individually against the computer. These games have the added advantage that defeat or poor performance does not have to be made public. In addition students can usually play the games several times and thus are given an opportunity to improve their scores whilst 'learning from their mistakes'. It would be interesting to see if individual competition aided learning with subjects other than 'underachieving' teenage boys and, if so, under what circumstances. In addition this may be linked with the 'risky shift' phenomenon ie. that individuals make less risky decisions than groups. If in addition they avoid excess competition and also learn more by competing as individuals, it may be advisable (where possible) to use games in which students play as individuals. This seems a suitably optimistic note on which to close this thesis.
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Appendix 1

Definitions

I have based my use of the terms 'game', 'simulation', 'simulation game' and case study on the definitions given by Henry Ellington (1981,1982). All the games that I observed and have described in the case studies were simulation games, with the exception of LUb. This was a case study which was played as a simulation game i.e. competitive with rules. However for brevity I refer to them all as games, or at times as games and simulations.

"A GAME, first of all, is 'any contest (play) among adversaries (players) operating under constraints (rules) for an objective (winning, victory or pay-off)'. Thus to qualify as a game an exercise must have two basic characteristics, namely overt competition and rules (arbitrary constraints within which the players have to operate).

"A SIMULATION is an operating representation of central features of reality'. Thus, to qualify as a 'simulation', an exercise must again have two basic characteristics, namely, it must represent a real situation and must be on-going (static analogues such as circuit diagrams do not qualify as simulations, but working models of all types do.

"A SIMULATION GAME is an exercise that possesses the essential characteristics of both games (competition and rules) and simulations (ongoing representation of real life), examples being chess and Monopoly."

"A CASE STUDY is 'an in-depth examination of a real-life or simulated situation carried out in order to illustrate special and/or general characteristics'. Thus to qualify as a 'case study' an exercise must again have two essential features, namely, in-depth study carried out in order to illustrate particular characteristics (either characteristics specific to the case under examination or more general features of the broader set of which it is a member)."
I would be very grateful if you would answer the following questions as fully as possible. Part of my research is to discover individuals' perspectives of games and simulations. Please continue on a separate sheet if you need more space.

1) Why do you use games and simulations?

2) What do you expect the students to learn from this game?
3) Is there anything else you expect the students to achieve by using it?

4) Is the competitive element of the game important to you? If so, why?

5) How do you expect the students to react to this simulation in terms of their approach, commitment, perspectives?

6) Can you see any drawbacks to this game?
7) How is the game assessed - does it count towards the final degree mark? Do the students clearly understand this?

Jane Lundy/JE
September, 1983
1. What did you expect from the game?

I expected to achieve some practice in negotiating skills and in chairing meetings. I felt it was also important to study how the group operated, looking out for stereotypes and try to understand the concepts behind a group working as one. I did not expect to learn much about company licences or corporate strategy and saw the exercise mainly as an opportunity to develop interpersonal skills.

2. What do you think the lecturers hoped you would achieve by playing the game?

I believe the lecturers hoped that the game would produce a sense of belonging in the first sense to the small groups and in the wider sense to the course as a whole. I do not think they expected us to make 'correct' or 'right' decisions as there were no such things, but hoped that we would all simply participate and have something to say. It was made very clear to us before the game began that the weekend was expected to be a social occasion and I think they also expected this to spill over into the game and give people a chance to get to know each other better.
3. How important was it to you or your team to win?

Not important 1 2 3 4 5 Very important

I felt it was obviously highly early on in the game that there would be no winners and modified my views somewhat on how important it was to win. I felt it was much more important to have a consensus within the group on any action that was taken and thus avoid recriminations if a particular strategy was shown to have failed.

4. How, if at all, did the importance of winning affect you or your teams approach to the game?

Several members of the team seemed to want to play the 'typical' Traders concept and put winning as their sole aim. This was a very short term view and their intransigence tended to blind them to the obvious that in the end we could only win if all sides co-op.

Within the group of about 15 people there were at least 5 who did not appear to have any opinion on this matter as they made no contribution to the whole game.

a) Do you think this was helpful or harmful to your learning?

I think the approach of the 'win at all cost' section of the group was particularly helpful to my learning as it was an ideal opportunity to practice skills in possession to try to get them to moderate their views. Had one opinion always had a unanimous verdict within the group then I feel the whole exercise would have been much less rewarding.
5. Outline the decisions you made in the game.

(Assuming you means the individual not the collective group).

I decided to put an offer to the bank direct for the

re-financing of the company with the bank obtaining an equity holding

in return for a reduction in the loan overdraft and worker-

representation on the company board.

I also produced the proposals for a new grievance procedure

within the company. This seemed to be the least controversial

area of discussion between the T&O and the company and the

T&O’s proposals were accepted, unamended.

a) What assumptions do you think underlay those decisions?

In making the last decision I assumed that the
company were making no headway in negotiations with the bank,
although they seemed to be concentrating most of their effort on
the bank’s decision, to the detriment of relations with the T&O.

The assumptions underlying the new grievance procedure was
that grievances would be more effectively dealt with at least
through normal procedures and if there were unsatisfactory the
method of appeal should be clearly laid out with appeals
overseen by an independent adjudicator.

b) What aspects of the game situation itself influenced the type of
decisions you made?

I was responsible, with the group, for deciding to work
to rule and then occupy the plant. Although not taken
on the spur of the moment, I feel that the game situation
allowed us to make these decisions in a rather reckless manner.
Alternate courses of action to occupation of the plant were
not even considered.
6. Please comment on your involvement in the game.

I thoroughly enjoyed the game and in particular my role as chairman of the 2D group. Although not elected to this position (no one ever was) I seemed to take it by default in all of our discussions in an attempt to give structure and direction to the proceedings. I was also asked by the groups to be spokesman at the final plenary session.

7. What do you feel was most useful about the game? Please comment in terms of -

a) understanding concepts
b) practical applications of concepts
c) developing friendly relations/rapport

Developing friendly relations/rapport was certainly the most useful aspect of the game. The experience in the groups allowed me to determine the sort of stance I could expect many people in the course to take over issues in the future and also showed me which of the participants I would be happiest to work with should group exercises like this occur again.

In terms of understanding concepts the game itself did not state any and it was only the brief on the Friday night about negotiations and conduct of meetings which introduced new concepts.
8. What do you feel was least useful about the game? Please comment -
   a) understanding concepts
   b) practical applications of concepts
   c) developing friendly relations/rapport

   Opportunity for practical application of concepts was limited by
   the turn of events. Although there was good opportunity to
   attempt to achieve good contact of meetings the time
   scheduling was necessarily limited and this meant that this
   important aspect was often overlooked.

   The behavior of the company also meant that
   opportunities to practice the skills of negotiation were severely
   limited.

9. It may be that in answering the above questions you feel you have not
   adequately portrayed your experiences of the game. If this is the case
   then please add below any additional comments.

   I feel that the game was successful as a 'getting to
   know you' exercise, but less so as an opportunity to
   practice management skills.

   I feel that intervention by lots to prevent
   any participating group adopting a stance which would
   close down opportunities for the other groups to practice
   these management skills would be very desirable.

THANK YOU FOR YOUR CO-OPERATION.
October, 1983
1. What did you expect from the game?

An overall company problem, involving multi-sided issues (financial, labour, administrative) to be resolved. Group dynamics should also have a very important role throughout the game. Additionally, the internal (company) and external (bank, trading) negotiations focus very well obtained.

2. What do you think the lecturers hoped you would achieve by playing the game?

- Increased awareness of environments, personal issues.
- Development of a working knowledge of group dynamics in view of conflicting issues.
- Get a feel for simulation of real cases in part of case studies.
3. How important was it to you or your team to win?

Not important 1 2 3 4 5 Very important ?

The importance to win or not to win
the game was never clearly defined.
The "seriousness" of the game was
not emphasized by the players, neither
by the group and as such many incorrect
attitudes and attitudes were taken. No definite

4. How, if at all, did the importance of winning affect you or your team
approach to the game?

Same as above question 3

a) Do you think this was helpful or harmful to your learning?

Winning drive is a very powerful
motivating factor in weekend car racing, and
should be one factor of many others (coherence
of decision, flexibility, seriousness on long-
term survival, willingness to compromise,
knowledge of the current facts, etc.). On the
other hand seriousness adds reasonableness
to all decisions & discussion throughout
the project.
5. Outline the decisions you made in the game.

(a) How to go about solving the problem

In our group decisions were so many and so unstructured that it is difficult to outline.

a) What assumptions do you think underlay those decisions?

(Much less sort out the assumptions made.

b) What aspects of the game situation itself influenced the type of decisions you made?

- Participants' background
- Group leader(s) - explicit/explicit
- Lack of ground rules
- Interpersonal emphasis on conflict e.g. "shutting doors on people, being tough minded, etc."
6. Please comment on your involvement in the game.

Tried to set a way at the beginning but dropped back later as the group all as a whole had their "constantly changing" ways of doing about the problems. Twice along the way I tried to focus on issues but again the groups had a very peculiar way to go about.

7. What do you feel was most useful about the game? Please comment in terms of -

a) understanding concepts
b) practical applications of concepts
c) developing friendly relations/rapport

B. The role playing situation brings in a very specific character and flavor to the game and actually factors in characters and personality. This strange involvement certainly enriches one's views on group dynamics and how to apply previously learned concepts. The case study for the game was, in my opinion, too advanced for the majority of the participants. Nobody had lots of management experience. I feel the case should give the participants
8. What do you feel was least useful about the game? Please comment -

a) understanding concepts
b) practical applications of concepts
c) developing friendly relations/rapport

C. In reality, because of the nature of the game, acting and because there were no mediating or set rules, lots of personality conflicts erupted and interestingly enough were carried over the game and into the socializing during the weekend. For example, I role played a young approach with the Unions in trying to compete for their high demands, because of it, lots of unions people still look at me across. I actually went out of my way to go to join the Unions. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

Two items needed:

1. Ground set of rules for game, as per as:
   - nature of role playing
   - conflict resolution approaches
   - genre/social set interaction

2. Mediators should also to make sure things do not get out of control and that feelings are not hurt. The consultants of actually inflicted (forced conflict which would not happen naturally) most wanted nature. Why do you think they would want to make me want to succeed? The consultants should have emphasized the need for resolving conflicts.

THANK YOU FOR YOUR CO-OPERATION.
October, 1983
1. What did you expect to learn from the game?
   About the extent of my understanding of the rest of the course. About the problems faced and decisions made by a production manager. About the interaction between the specialist areas of a business.

2. To what extent do you feel that you met the learning objectives set out in section 1.1.
   To a limited extent due to the time my own job was taking. I would have liked to have been more involved in financial and marketing decisions.

3. Do you think the competitive nature of the game was helpful or harmful to your learning?
   I think it was helpful as it made the game more realistic and enhanced commitment. The share price graph indicated relative performance and made us try to analyze where we were going wrong.
4. What factors did you and your team consider when deciding your strategy?

The use of the market at the beginning of the game to estimate the scale of operations.
Our confidence in playing unfamiliar roles and running the business.

5. What do you feel was most/least useful about the game?

Most useful was the way the game demonstrated the interdependence of the specialist areas and the need for defined responsibilities individually and to each other. The ways in which things can go wrong and the difficulties of recovery were also seen.

The time factor was least useful and reduced the quality of decisions and discussion. However, I feel if we had been able to organise ourselves better, this would have been less of a problem.

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

JL/JE
January, 1984
1. What did you expect from the game?

I did not expect too much from the game, as I had played other games on courses, although not of a business type, and felt that I did not consciously learn too much from them. Therefore, I probably entered the game with a slightly negative attitude.

2. What did you learn from the game?

I believe that I have gained a further insight into the complexities of running a business. Whilst I felt that the game was over-simplified, it did highlight the need for effective communication when gathering information, and manipulating it decision-making.

Also, I experienced co-ordinated decision-making for the first time.

3. Do you think the competitive nature of the game was helpful or harmful to your learning?

I considered the competitive nature of the game to be beneficial to my learning. This was due to the fact that it enabled me to focus my interest on a set objective, and thus concentrate on understanding the concepts that would be necessary to reach that objective.
4. What factors did you and your team consider when deciding your strategy?

- Set attainable objectives.
- Make full use of available information so as to aid decision making.
- Do not stray from initial strategy, but alter tactics as necessary to reach objective.
- Place emphasis on teamwork, i.e. pool thoughts and work each individual idea through to see expected results and how they will fit in with the strategy.

5. What do you feel was most/least useful about the game?

- Time limitations, and those of the software package, I found the game implicit. The game would have been more beneficial if it had been staged over 2 or 3 days, thus allowing for more complex business factors to be considered.
- There had been more extensive use of computer terminals to aid:
  (i) Input time.
  (ii) Decision making, by enabling "what if" analyses to be carried out.

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

Generally speaking, the game was a useful addition to the course. This was because it enabled me to see the usefulness of the accounting concepts within a business situation, and also how they interacted with one and other.

It would possibly be of great benefit to management accounting staff to have an advanced course with a more advanced game. To say this because I believe our business to be very complex, and that to train staff adequately, they need to learn from something that is more relevant to the business. This is not to knock the course, which I consider to be a more than adequate stepping stone, but to emphasise that training should not stop at the preliminary stage.
1. Bearing in mind that the exercise is used as a summary of your 5 week course, did it fulfill its purpose?

Yes, I found it useful to see the various elements of teaching - accepting the limitations of such exercises - in a most realistic fashion.

2. What did you learn from the game?

How little I knew about business generally, and how much one would have to know in a wide variety of spheres if one were to succeed. Perhaps above all the need to control cash flow aspects.

3. Do you think the competitive nature of the game was helpful or harmful to your learning?

Helpful - it added excitement to the whole exercise. Without it, I feel it would have been little more than a routine classroom exercise.
What factors did you and your team consider when deciding your strategy? Did you achieve this strategy? If not, what decision making processes did you implement to change course?

We made certain errors in production scheduling (we cut going for the optimum cost/unit) and at the end of the second day - we had cash flow problems - lead to revise our strategy.

What do you feel was most/least useful about the game?

The test market was invaluable - without this I think we would have been lost. Despite this, we still made a number of errors in the actual exercise itself.

It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

I thoroughly enjoyed the exercise and found it one of the highlights of the course.

Sorry about the delay in returning this.
1. Bearing in mind that the exercise is used as a summary of your 5 week course, did it fulfill its purpose?

Yes - it hit the idea of frequency/pri

2. What did you learn from the game?

...Business steady expansion

3. Do you think the competitive nature of the game was helpful or harmful to your learning?

Certainly helpful as far as Marketing and Sales is concerned...
4. What factors did you and your team consider when deciding your strategy? Did you achieve this strategy? If not, what decision making processes did you implement to change course?

Critical strategy of expansion nearly proved our undoing - after the teaching at period II on Wednesday, re-examined our figures and had to reduce sales in period II, formulating new strategy of growth with trimmed variable costs, and subsequently went well into the good profit zone.

5. What do you feel was most/least useful about the game?

Computer figures on sales - appears to be a direct relationship between advertisements & sales which does not carry any goodwill forward. Having advertised in one area for four periods - dropping advertising had exactly the same effect as if we had never advertised and had any goodwill!

Most useful - still the emphasis on financial figure.

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

Note: I was absent for periods 5-7, and also acted as federation member so was involved in dealing with the other groups - I may have missed some of the important aspects of any group's decision making.

Also feel that teams could have had much more pressure applied!

JL/JE

P.S. Hope your mid-term goes well.
**BUSINESS GAME**

**STARTING POSITION FOR GAME**

The game will be set up with all companies in the following positions:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Material in Stock</td>
<td>3000 UNITS</td>
</tr>
<tr>
<td>Finished Goods in Home Depot</td>
<td>1500 UNITS</td>
</tr>
<tr>
<td>Finished Goods in Export Depot</td>
<td>1500 UNITS</td>
</tr>
<tr>
<td>Number of Machines (new)</td>
<td>2</td>
</tr>
<tr>
<td>Current Price in Home Market</td>
<td>£85.00</td>
</tr>
<tr>
<td>Current Price in Export Market</td>
<td>£85.00</td>
</tr>
<tr>
<td>Production Cost</td>
<td>£35.00</td>
</tr>
<tr>
<td>Previous Prod. sent to Home Depot</td>
<td>1500 UNITS</td>
</tr>
<tr>
<td>Previous Prod. sent to Export Depot</td>
<td>1500 UNITS</td>
</tr>
<tr>
<td>Previous production request</td>
<td>3000 UNITS</td>
</tr>
<tr>
<td>Previous raw material bought</td>
<td>2000 UNITS</td>
</tr>
<tr>
<td>Previous % prod. assigned to Export</td>
<td>50%</td>
</tr>
<tr>
<td>Transshipment</td>
<td>NO</td>
</tr>
<tr>
<td>Machine maintenance</td>
<td>NO</td>
</tr>
<tr>
<td>Previous price in Home market</td>
<td>£85.00</td>
</tr>
<tr>
<td>Previous price in Export market</td>
<td>£85.00</td>
</tr>
<tr>
<td>R &amp; D investment (both types)</td>
<td>0</td>
</tr>
<tr>
<td>Advertising</td>
<td>NONE</td>
</tr>
<tr>
<td>Cash Balance</td>
<td>£20,500</td>
</tr>
<tr>
<td>Machines at W/D Value (2 x £2000)</td>
<td>£4,000</td>
</tr>
<tr>
<td>Stock Value (3000 x £20 + 3000 x £35)</td>
<td>£165,000</td>
</tr>
<tr>
<td>Share Capital</td>
<td>£160,000</td>
</tr>
<tr>
<td>Loans</td>
<td>£0</td>
</tr>
<tr>
<td>P/L Balance</td>
<td>£29,500</td>
</tr>
</tbody>
</table>
Decisions which are to be made by each company in each quarter are listed below.

<table>
<thead>
<tr>
<th>DECISION</th>
<th>RESTRICTION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of machines to buy</td>
<td>≤ 5</td>
<td>0</td>
</tr>
<tr>
<td>Number of machines to sell</td>
<td>≤ 6</td>
<td>0</td>
</tr>
<tr>
<td>Total amount to produce this quarter</td>
<td>≤ 30000</td>
<td>2750</td>
</tr>
<tr>
<td>Count of raw material to buy</td>
<td>≤ 30000</td>
<td>2250</td>
</tr>
<tr>
<td>Count of current production to assign to export depot</td>
<td>≤ 100</td>
<td>32.0%</td>
</tr>
<tr>
<td>Transhipment request (between home and export depots)</td>
<td>0 or 1</td>
<td>1</td>
</tr>
<tr>
<td>Enter 1 for YES, 0 for NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance request (applies to all machines)</td>
<td>0 or 1</td>
<td>0</td>
</tr>
<tr>
<td>Enter 1 for YES, 0 for NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price in Home Market</td>
<td>≤ 250</td>
<td>85</td>
</tr>
<tr>
<td>Price in Export Market</td>
<td>≤ 250</td>
<td>72.50</td>
</tr>
<tr>
<td>Count to invest in development R &amp; D</td>
<td>None</td>
<td>2000</td>
</tr>
<tr>
<td>Count to invest in applied R &amp; D</td>
<td>None</td>
<td>20000</td>
</tr>
<tr>
<td>Count of pages of newspaper advertising for home market</td>
<td>≤ 99</td>
<td>80</td>
</tr>
<tr>
<td>Count of pages of newspaper advertising for export market</td>
<td>≤ 99</td>
<td>50</td>
</tr>
<tr>
<td>Count of TV slots advertising for home market</td>
<td>≤ 99</td>
<td>60</td>
</tr>
<tr>
<td>Count of TV slots advertising for export market</td>
<td>≤ 99</td>
<td>60</td>
</tr>
<tr>
<td>Request advertising survey</td>
<td>0 or 1</td>
<td>1</td>
</tr>
<tr>
<td>Enter 1 for YES, 0 for NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request Market Survey</td>
<td>0 or 1</td>
<td>1</td>
</tr>
<tr>
<td>Enter 1 for YES, 0 for NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request Sales Survey</td>
<td>0 or 1</td>
<td>0</td>
</tr>
<tr>
<td>Enter 1 for YES, 0 for NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request R &amp; D expenditure to date</td>
<td>0 or 1</td>
<td>0</td>
</tr>
<tr>
<td>Enter 1 for YES, 0 for NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarters for which demand forecasts required</td>
<td>≤ 5qutrs</td>
<td>10,11</td>
</tr>
</tbody>
</table>

Should be noted that if after buying and selling machines, a company owns more than 5, the number they own will automatically be cut down to 5.
I am interested in your views of the game you have just played. There are no right or wrong answers and your replies will be strictly confidential.

I would be grateful if you would write in your own words about the times when something happened in the game which to you was a definite positive learning experience ie. something especially effective from the standpoint of producing learning. Then write about the times when something happened in the game which resulted in a definite negative learning experience ie. something which prevented rather than produced learning.

If you wish to add any other comments about the game, I would welcome these also. Please continue on a separate sheet if you wish.

When you have completed this assignment could you return it in the envelope provided to the School Office, they will then forward it unopened to me.

Thanks.

JANE LUNDY
I am interested in your views of the game you have just played. There are no right or wrong answers and your replies will be strictly confidential.

I should be grateful if you would tell me in your own words what happened throughout the game, how you felt about it and what you learned. Please continue on a separate sheet if you wish.

When you have completed the questionnaire could you return it, in the envelope provided, to the school office, they will then forward it unopened to me.

Thank you.

Jane Lundy (Mrs)
As you probably know I am researching into the use of games and simulations in teaching and learning. I am particularly interested in individuals perceptions of these sessions and would therefore be grateful if you would complete the questionnaire overleaf. It would be most useful if you could do this within 48 hours of the final plenary session whilst the events are still fresh in your mind. Please continue on a separate sheet if you wish.

There are no right or wrong answers and your replies will be strictly confidential. When you have completed the questionnaire please would you return it in the envelope provided to the School Office, they will then forward it unopened to me.

Thanks for your help,

Jane Lundy

Enc.
1. What did you expect from the game?

2. What do you think the lecturers hoped you would achieve by playing the game?
3. How important was it to you or your team to win?

Not important [ ] [ ] [ ] [ ] [ ] Very important

4. How, if at all, did the importance of winning affect you or your teams approach to the game?

a) Do you think this was helpful or harmful to your learning?
5. Outline the decisions you made in the game.

a) What assumptions do you think underlay those decisions?

b) What aspects of the game situation itself influenced the type of decisions you made?
6. Please comment on your involvement in the game.

7. What do you feel was most useful about the game? Please comment in terms of -
   a) understanding concepts
   b) practical applications of concepts
   c) developing friendly relations/rapport
8. What do you feel was least useful about the game? Please comment -
   a) understanding concepts
   b) practical applications of concepts
   c) developing friendly relations/rapport

9. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

THANK YOU FOR YOUR CO-OPERATION.
October, 1983
5.1 Opening Balance Sheet

The Balance Sheet of each company at the start of period 1 is as follows:

<table>
<thead>
<tr>
<th></th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory</td>
<td>100,000</td>
</tr>
<tr>
<td>Cash</td>
<td>40,000</td>
</tr>
<tr>
<td>Net Assets</td>
<td>140,000</td>
</tr>
</tbody>
</table>

Financed by:

Ordinary shares (140,000 at £1) 140,000

5.2 Bank Loans

Companies may find that additional finance can be raised from the bank. Naturally, the bank will demand security for its loan, and "doubtful" companies may find themselves having to pay higher than normal rates of interest.

Loans must be negotiated at least one period in advance of when the money is required and must be coded on the sheet for the period prior to that when the money will actually arrive in the company's balance sheet. e.g. a loan negotiated in period 3 and coded on the sheet for period 4, will become available in period 5.

Repayments must be completed during the 8 periods following the receipt of the loan; e.g. the loan above must be repaid in periods 6 to 13. The pattern of repayments being specified at the time that the loan is agreed upon. The rate of interest must also be agreed upon at this time; the rate is the rate-per-quarter, interest being paid quarterly on the balance outstanding at the end of the quarter.

Companies holding an existing loan may be able to negotiate a further loan. The new loan is subject to the same treatment as the old ones; it may be possible for a company to have several loans at once, each showing a different payment pattern. However, the rate of interest applicable to the most recently granted loan will apply to all other loans in existence as well.

eg. suppose that the loan mentioned above involves a rate of 4% per quarter, and in that period 9 the company negotiates another loan, to begin in period 10, at 4½%. From period 10 onwards the rate charged on the outstanding balance of the original loan is also 4½%.

MEL/1) For coding purposes, enter:

1) The amount borrowed, in units of £1000.
   eg. If £10,000 is borrowed, enter as "10"
   If £10,250 is borrowed, enter as "10.25"

2) The rate of interest per quarter

3) 8 figures showing the amount to be repaid, in units of £1,000, in each of the following 8 quarters.

4) The whole must be signed by the banker.

If the repayments are not equal to the amount borrowed, then the computer operator will assume that the loan is to be repaid at the earliest moment.

Once a loan has been entered on the form, no further action need be taken. Repayments will automatically occur as they fall due. If a company finds that it cannot repay what it owes, it must negotiate for a fresh loan on top of the existing one. If, however, a firm wishes to repay in advance it may negotiate with the banker to do so.

eg. In the example above the company borrows £50,000, and agrees to repay £10,000 in period 10, £10,000 in 11, £10,000 in 12, and the remaining £20,000 in 13. In period 9 it negotiates to repay in additional £12,000, as soon as possible. It now owes nothing in period 11, £8,000 in 12, £20,000 in 13.

(MEL/1) For coding purposes, enter a negative number (in units of £1000) in the box normally used for specifying loans, and get the banker to countersign. All other boxes should be left blank. Do not use this procedure for normal repayments, otherwise you will repay double what you intended!
## Production

### 1.2.2 Labour

<table>
<thead>
<tr>
<th>UMP Sign (⁻)</th>
<th>Normal Recruitment (+)</th>
<th>Redundancy (⁻)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Agency Recruitment

### 1.2.3 Machinery

<table>
<thead>
<tr>
<th>UMP Sign</th>
<th>Number Purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Price per Machine £

<table>
<thead>
<tr>
<th>UMP Sign</th>
<th>Number Rented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1.2.4 Raw Materials

<table>
<thead>
<tr>
<th>UMP Sign</th>
<th>Normal Purchases (Units)</th>
<th>Negotiated: Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UMP Sign</th>
<th>Price/Unit</th>
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Inter-Comp Purchases (+)/SALES(⁻)

<table>
<thead>
<tr>
<th>Comp Name</th>
<th>Comp Sign</th>
<th>Price/Unit</th>
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<tbody>
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### 1.2.5 Maintenance

Units (£1000) - YR END ONLY £'000

### 1.2.6 Proposed Production

Units

## Sales

### 1.3.1 Salesmen/Area

<table>
<thead>
<tr>
<th>Normal Recruitment (+)</th>
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<tbody>
<tr>
<td>UMP Sign (⁻)</td>
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Agency Recruitment

### 1.3.2 Salesmen

<table>
<thead>
<tr>
<th>UMP Sign</th>
<th>Price/Area</th>
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### 1.3.3 Prices/Area

<table>
<thead>
<tr>
<th>Price/Area</th>
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### 1.3.4 Advert/Area

<table>
<thead>
<tr>
<th>Merit Adverts (Number)</th>
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</thead>
<tbody>
<tr>
<td>UMP Sign</td>
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### 1.3.5 Research + Development (£1000)

<table>
<thead>
<tr>
<th>£'000</th>
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### 1.3.8 Contract Sales

<table>
<thead>
<tr>
<th>Units</th>
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<table>
<thead>
<tr>
<th>Sale To</th>
<th>Price/Units</th>
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<tr>
<th>UMP Sign</th>
<th>Pay Period</th>
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Inter-Comp Purchases (+)/SALES(⁻)

<table>
<thead>
<tr>
<th>Comp Name</th>
<th>Comp Sign</th>
<th>Price/Unit</th>
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### 1.3.9 Rejects

<table>
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<th>Percentage to Piggery</th>
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<td>UMP Sign</td>
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|                  |             |
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Following completion of the company decisions for Period 13 the operation of the simulation ends. The exercise represents a period of three years in the existence of the three companies producing instant mash potato:

TOFMASH
MASCO
SPUDNIK

At this stage we review the progress of the three companies and what has been learned by the three syndicate groups. The main review will take the form of company reports from each of the syndicates. The structure of these reports will be decided by each group, but should ensure that the reports cover:

1. An outline of the initial company strategy and how far targets and timings were achieved.
2. An account of the changes made in the strategy and why they were made.
3. An account of where things did not go to plan and how the company coped with these problems.
4. The syndicate members should identify what they have learned about the relationship between formulating a company strategy and the day to day pressures which affect it. Particular attention should be given to:
   i. the financing and funding of the company
   ii. interrelationships between functions
   iii. planning profit and controlling cash
   iv. how far you were able to establish your own position in the market place and anticipate the competition
5. Finally can you comment on what your team has learned during the week and its implications.

This will be followed by a review by Sherwin Smith and John Horton who will give an external financial assessment of the performance of the three companies and the behaviour of the total market.

The timetable for the morning will be:

10.15 - 11.15 Preparation for comparing reports
11.15 - 12.15 Report back by each company
12.15 - 1.00 Financial review

In order to keep roughly to the timetable each company should confine itself to a report of 15 minutes for presentation.
1.1.1 Objectives

The “Melnikoff” Business Game, now in its 3rd Edition, is a computerised management simulation exercise in which a maximum of 5 companies compete for mastery in the manufacture and sale of instant mashed potato. There are two versions of the game, known, for want of a better terminology, as “Melnikoff Simple”, and “Melnikoff Advanced”. The distinction is explained in sections 1.1.2 and 1.1.3 below.

In defining objectives, it is important to distinguish between:

(1) The objectives of the participants, which is to learn

(2) The objectives of the companies, which is to “win”

My main concern is with (1), since that is really the point of the whole exercise. Indeed experience has shown that it is often the people whose companies perform the worst who seem to gain most from the game. Not that this should be seen as an excuse for lax behaviour! The game is a dynamic case study, in which each company, period by period, is faced with a market situation which will be modified as a result of the activities of all who are competing. It is a process of decision-making and instant feedback.

As regards the actual learning objectives, these will differ, either individually or collectively, with the needs of the participants. Among likely areas of learning are:

Preparation of Financial Accounts
Budgeting and Planning, including Cash Flow Forecasting
Company Financing Methods
Interpretation of Accounts + Performance Criteria
Use of Information
Marketing, and Analysis of Market Forces
Negotiating Skills, including Industrial Relations
Team Work + Organisational Skills
Long-range Planning
Decision-making
Reporting to Shareholders/the Public, etc
Plus many others (no doubt)

However, it is important not to neglect (2) above, since setting corporate objectives is part of the learning process. So, at the very outset of the game, each company should state its performance objectives (eg. level of profits, market shares, etc), and will be measured against these throughout.

In addition, companies will be judged on 2 factors:

(1) Market price of ordinary shares, which is a guide to the efficiency with which the company is using its owners' funds, and enables direct comparison between companies

(2) On-going nature of the company, ie. the directors must leave the company in a healthy state so that it may continue trading in the indefinite future, and will not collapse immediately on the termination of the official “game”
I am researching into the use of simulations and games and I am interested in your view of the game that you have just played. There are no right or wrong answers and your reply will be strictly confidential.

When you have completed the questionnaire could you return it, in the envelope provided, to the school office, they will then forward it unopened to me.

Thank you.

Jane Lundy (Mrs)
1. What did you expect from the game?

2. What did you learn from the game?

3. Do you think the competitive nature of the game was helpful or harmful to your learning?
4. What factors did you and your team consider when deciding your strategy?

5. What do you feel was most/least useful about the game?

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

JL/JE
January, 1984
I am researching into the use of simulations and games and I am interested in your view of the game that you have just played. There are no right or wrong answers and your reply will be strictly confidential.

When you have completed the questionnaire could you return it, in the free post envelope provided.

Thank you.

Jane Lundy (Mrs.)
1. What did you expect to learn from the game?

2. To what extent do you feel that you met the learning objectives set out in section 1.1.

3. Do you think the competitive nature of the game was helpful or harmful to your learning?
4. What factors did you and your team consider when deciding your strategy?

5. What do you feel was most/least useful about the game?

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

JL/JE
January, 1984
# CISION AND RESULTS SHEET for BT

<table>
<thead>
<tr>
<th>NOTE (1)</th>
<th>NOTE (2)</th>
<th>NOTE (3)</th>
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<tbody>
<tr>
<td>PRICE (£)</td>
<td>ADVERT (£)</td>
<td>PRODN (PACKS)</td>
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Completed by the Managing director. (Opening stock is previous month's closing stock. Provided by Tutor.

Completed by the Managing director after return of results.

## APPLICATIONS

<table>
<thead>
<tr>
<th>AMOUNT REQUIRED (£)</th>
<th>AGREED BY BANK MANAGER</th>
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Prepared by: .................................

(Managing director)
Solvency Guide.
Department of Educational Studies
Institute of Educational Development
formerly:
Institute for Educational Technology

JL/JE

I am researching into the use of simulations and games and I am interested in your view of the game that you have just played. There are no right or wrong answers and your reply will be strictly confidential.

When you have completed the questionnaire could you return it, in the envelope provided,

Thank you.

JL/JE
1. What did you expect from the game?

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5. What do you feel was most/least useful about the game?

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.

JL/JE
I am interested in your views of the game you have just played. There are no right or wrong answers and your replies will be strictly confidential.

I should be grateful if you would tell me in your own words what happened throughout the game, how you felt about it and what you learned. Please continue on a separate sheet if you wish.

When you have completed this assignment, could you please return it in the FREEPOST envelope provided.

Thanks.

JANE MITCHELL
1. ‘Splosh Major’ is a three-day exercise encompassing a ‘Test Market’ of the product, and then a ‘National’ operation.

2. The scenario is as follows:
   All companies are funded by NEDC and are required to Test Market for four periods in only one Region. At the end of this time (P8/TM) any profit made will be returned to NEDC, and any losses met by them. Thus:

   **Phase 1  ‘TEST MARKET’ **
   TM Periods 1-4 Planning
   TM Periods 5-8 Operational

   **Phase 2  ‘GOING NATIONAL’ ** (one year later)

3. IN PHASE 1 companies have to select one Region to which they are confined for the period of the Test Market. Thus:
   - maximum 6 representatives
   - only 1 product line
   - £160K (supplied by NEDC) cannot be exceeded (i.e., no loans) – Not a Public Limited
   - NQ R & D
   - NQ Government contracts

4. IN PHASE 2 all debts will be paid by NEDC and any profits returned to NEDC. Thus companies start again with £160K as a Public Limited Companies, launch their product in any region and expand into other regions. This does not mean that all regions have to be covered. The constraints listed in para 3 above, therefore, are removed.

5. THE PROGRAMME will be outlined at the Briefing.

6. REQUIRED AFTER BRIEFING
   - Company Name (A B C etc.)
   - Company Organisation
   
   Duties to be covered
   - Control, Communication, Co-ordination
   - Policy and Balance
   - Estimates and Actuals of: Sales, Production and Finance
   - Negotiations

   You will need pencils, rubbers, rulers, paper clips and calculators.

7. HOW PLAYED – can only move to the next period when:
   - All teams audited
   - Decision Statement for next period submitted, with
   - Any Government Tender (Phase 2)

8. LAYOUT AND DS will be explained.

9. STAFF WORK available immediately after the briefing.

10. ADDITIONAL RULES
   - **Loans**
      - performance may reduce interest rate on application
      - there can be NQ negative cash balance at audit
   - **Overselling**
      - there can be NQ shortfall on sales
      - stock must be bought in (other companies)
   - **Agreements**
      - ensure in writing and signed by both parties
   - **Negotiations**
      - give negotiator the necessary power
   - **What is Splosh?**
      - it is anything but it contains 90% Pyrethrum
   - **Late Audit Penalties**
      - after 10 minutes £100 per minute
   - **R & D**
      - No investment before Period 7
   - **Stock Holding**
      - Not effective until Period 8
      1 line - 10,000 Stock in excess - Warehousing Charges
      2 lines - 7,500 40p per unit
      3 lines - 5,000
I am researching into the use of simulations and games and I am interested in your view of the game that you have just played. There are no right or wrong answers and your reply will be strictly confidential.

When you have completed the questionnaire could you return it, in the envelope provided,

Thank you.

Jane Lundy
1. Bearing in mind that the exercise is used as a summary of your 5 week course, did it fulfill its purpose?

2. What did you learn from the game?

3. Do you think the competitive nature of the game was helpful or harmful to your learning?
4. What factors did you and your team consider when deciding your strategy? Did you achieve this strategy? If not, what decision making processes did you implement to change course?

5. What do you feel was most/least useful about the game?

6. It may be that in answering the above questions you feel you have not adequately portrayed your experiences of the game. If this is the case then please add below any additional comments.