# Chapter 10: Tutoring Business Simulations

## Content

## Introduction

This guide is designed to provide practical advice on how to run simulations on management development courses.

For *new users* it provides a comprehensive guide and how to *get up to speed* and circumvent problems. For *experienced users* it should provide an extensive aide-memoir.

The guide is divided into two parts:

      ♦  **TUTOR MEDIATED SIMULATIONS**
      ♦  **DIRECT USE SIMULATIONS**

reflecting the differing role of the tutor and his or her position in the process.

**Tutor Mediated** simulations are those where the trainer enters and processes decisions for teams using a single microcomputer. Typically the simulations using this approach are the longer, more complex simulations where one team's decisions interact with the other team's decisions. Typically, these are total enterprise simulations and sales & marketing functional simulations.

**Direct Use** simulations are those where the participants enter their own decisions in their own microcomputer. Usually, these are short, non-interactive simulations and experiential exercises and non-interactive functional simulations that explore purchasing, manufacturing, finance, project management etc.

Both these types of simulations consist of three stages (Figure 10.01) – briefing, simulation and review.



Figure 10.01: Basic Simulation Process

The simulation of the business activity involves running the business for several periods or taking it through several stages (Figure 10.02).
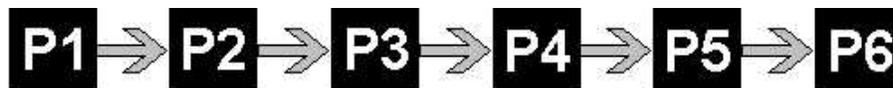


Figure 10.02: Simulating several periods or stages

Typically each period or stage (Figure 10.03) consists of making decisions that are then fed into the simulation. This assesses the impact of the decisions and produces several results. The learners analyse and reflect on these results. Finally. The learners replan before making the next decisions. This process parallels the *Kolb Experiential Learning Cycle* (Active Experimentation, Concrete Experience, Reflective Observation and Abstract Conceptualisation).
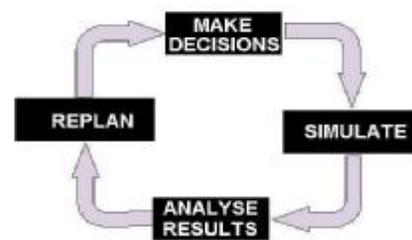


Figure 10.03: Decision Cycle

## The Tutor

Who should *tutor* the simulation? There are two skills sets – business and teaching (Figure 10.04) where business skills range from basic business knowledge to deep industry wisdom and where teaching skills range from basic presentation skill to the ability manage learning in a student led adult learning environment.

| | Presentation Skills | Traditional Instruction | Coaching & Challenging |
|---|---|---|---|
| Industry Wisdom | 7 | 8 | 9 |
| Business Experience | 4 | 5 | 6 |
| Business Knowledge | 1 | 2 | 3 |

Figure 10.04: Learning Management Grid

## The Business Axis

The **Business Knowledge** level defines the extent to which the trainer understands basic management theory. It ranges from no knowledge (at the bottom of the level) to in depth *theoretical knowledge* at the top of the level. So the focus is on theory untouched by practical experience.

The **Business Experience** level defines the extent to which the trainer has experience working in business. It extends from experience of a single function to where the trainer has cross-functional experience. In other words it shows the extent to which the trainer is able to *use* his or her knowledge of business and understands *real-world practicalities.*

The **Industry Wisdom** level defines the knowledge the trainer has of the learner's company and industry and so defines extent to which the trainer can link to the learners and their day-to-day jobs.

**The Teaching Skills Axis**
**Presentation Skills** are seen by many to be the only prerequisite to teach. An assumption that is based on the premise that learning is about a knowledge dump from the trainer's brain into the learners' brains without passing though any form of consciousness.

**Traditional Instruction** concentrate on ensuring that knowledge is transferred but the instructors see themselves as central to and controlling the learning process. Thus, it ranges from academic lectures to discussions led by the instructor.

**Coaching and Challenging** the learners is appropriate to business simulations where the process is learner centred and the tutor's role is to support and manage the learning process rather than control it and *tell* the students what to do.

**The *Ideal* Position and getting there**
The ***ideal position*** for the person managing the learning process when using business simulations is either in block number 9 or at the top of block 6 as this is where the person can discuss simulation outcomes in the context of business and the learners' jobs. And if the trainer is not positioned here there is a need to move from where he or she is to here.

For people indoctrinated in Traditional Instruction (lecturing) it can be difficult to change their style to that required by the Coach and Challenge as this involved relinquishing control to the participants. This means that probably the worst position is towards the top of block number 2. Here the *"teacher"* sees himself or herself as a Business Knowledge expert but is used to *telling* students what business is all about.

A good position to start from is towards the left of block number 7. Here the person has significant Industry Wisdom and some Presentation Skills but has not picked up any of the *bad habits* of Traditional Instruction. Provide they understand the difference between Traditional Instruction and Coaching & Challenging, it should be reasonably easy to jump to block number 9.

However, for Total Enterprise Simulations any position in blocks 7 or 8 or towards the top of blocks 4 or 5 are suitable starting points For Functional Simulations this extends to the rest of blocks 4 and 5.

**I see the role of learning manager (tutor) as an ideal one for "Baby Boomers" about to retire or who have just retired as this is a way of "*harvesting their wisdom*" and not losing it to the organisation.**

## Pre-Course Preparation
The simulation package will include a tutor's or administrator's manual, participants' briefs (or set of masters) and the software.

The tutor's manual will include instructions on how to install and use the software, notes on the simulation and information where help can be obtained. The notes on the simulation (**Background Notes**) provide information on the participants' brief, the assumptions built into the simulation (model and data) and information on how a run of the simulation is likely to develop.

Before running the simulation the tutor must:

- ♦ **BECOME FAMILIAR WITH IT**
- ♦ **PLAN THE FACILITIES**
- ♦ **PLAN THE TIME-TABLE**

**Tutor Familiarisation**
If the tutor has not used the simulation previously it is necessary to:

- ♦ **ANALYSE THE PARTICIPANT'S BRIEF**
- ♦ **ANALYSE THE BACKGROUND NOTES**
- ♦ **MAKE TRIAL DECISIONS**
- ♦ **ANALYSE RESULTS**

The tutor should **analyse the participant's brief** as though participating. By reading the participant's brief first, with no preconceptions, a view of the simulation is created from the participants' viewpoint. This prepares the tutor to answer questions and understand the learning issues.

When reading the brief it helps if a list is made of the business's strengths, weaknesses, opportunities and threats (SWOT analysis).

After analysing the participant's brief the simulation's **background notes** should be read and compared with the preceding analysis of the participant's brief. (In particular perceptions of initial strengths, weaknesses, opportunities and threats and, probable, market responses should be thought about.)

Several **trial decisions** should be made and simulated. This helps gain familiarity with the software and how the simulation model responds to decisions. If possible these decisions should be made working with a small team of fellow tutors so that the decision-making process and results can be discussed.

The **results** should be analysed to see if they are understood and to decide how they were caused by the decisions. After analysing team results, if the simulation provides tutor reports, these can be analysed. (These tutor reports are designed to help increase understanding, explain & reconcile results and enable questions to be answered.)

As an alternative, the tutor can **shadow an experienced tutor** as he or she runs the simulation.

If the tutor has not used the simulation for some time I suggest the background notes are reread and some trial decisions entered. This should remind the tutor of the learning issues and software use.

**Facilities Planning**
As these differ for Tutor Mediated and Direct Use simulations these are discussed in the relevant sections.

**Time Table Planning**
For most Direct Use simulation, the simulation will be run in a single session. But, for complex Direct Use simulations and Tutor Mediated simulations, the simulation may be run in a single session or spread over several sessions. The simulation's Tutor's Manual should provide information about suitable time table(s).

# Tutor Mediated Simulations

This section describes running simulations on courses where the tutor enters decisions and where, usually, team decisions interact in the same market places.

As the tutor is directly involved in the decision entry and the simulation process (Figure 10.05) we call these **Tutor Mediated** to distinguish them from simulations where the participants use the microcomputer directly.



**Team** — Decisions — Results — **Trainer with simulation** — Decisions — **Team**

**Team** — Results — Decisions — Results — Decisions — **Team**

Figure 10.05: Tutor Mediated Simulation

The section covers:

♦ **FACILITIES PLANNING**
♦ **TIME TABLE PLANNING**
♦ **BRIEFING THE SIMULATION**
♦ **RUNNING THE SIMULATION**
♦ **REVIEW & DEBRIEFING**

## Facilities Planning

To run the simulation the following are recommended:

♦ **A ROOM FOR EACH TEAM**
♦ **A CONTROL ROOM OR AREA FOR THE TUTOR**
♦ **A LARGE ROOM FOR BRIEFING & DEBRIEFING**

Where space is limited part of the main lecture room may be used for the control area. Where space limitations are severe, the teams may work, at separate tables, in a large room.

If possible, the team rooms should be clustered around the control room. Although, the simulation can be run with the team rooms and the control room physically spread (as may be necessary in a hotel). If this is so, the timetable may need to be extended and additional staffing provided to liase between the control centre and team rooms.

### Team Rooms

During both the simulation briefing and the review the course delegates will be in the large room. During preparation and decision-making each team will be located in its own room.

To ensure the most effective working environment in the team rooms the following should be provided for each:

1. Blank paper and, optionally, graph paper. With paper clips or a stapler to help organise information.

2. Large charts. These may be a blackboard or, preferably, a flip chart. The teams should be able to fix the flip chart sheets around the room (using drawing pins, masking tape or equivalent). These charts help communication, planning and the measurement of progress.
3. Sufficient chairs for the team plus two for visitors.
4. If possible, the team room table should consist of several small tables. This enables teams to rearrange their physical environment and work as separate units.
5. Teams often appreciate being able to lock the door to their boardroom.
6. A team number or team name label should be provided for the door of each team room. This increases the team's feeling of belonging (and labelling the doors helps the tutor deliver results to the right room!)
7. If run in a hotel or office, ensure that the syndicate rooms are an adequate size, well lit and have facilities to display charts around the walls.

**Simulation Control Area**
An area should be set aside for the directing staff and the computer. This can be in a separate room or part of the large briefing/debriefing room.

The simulation control area will be visited by team members (to deliver decisions, collect results and ask questions). Also, it will be used by the directing staff to discuss progress and keep a record of team performance. This mixture of confidential information and team access may pose a security problem unless the room is set out in a suitable way.

1. The table should positioned by the entrance provides a barrier to the delegates.
2. The position of the computer, with a worktable to its left, provides the maximum of easily accessible workspace. (Ergonomics are improved if the operator's chair swivels). (Left-handed operators may wish to reverse the position of the worktable.) It is important to have sufficient table space and it is better to err on the side of too much rather than too little.
3. The actual positioning of the computer depends on the power supply and lighting. It may be necessary to use an extension lead and lamp.
4. During the simulation a surprising amount of paper is generated. To prepare for this a **large** waste paper basket should be provided. This provision can be a problem, especially in hotels. (However, hotel staff can, usually, be encouraged to provide a suitable waste paper basket if discarded paper is dropped on the floor!)
5. The worktables must be large enough to hold the computer and printer, with space for printout and, optionally, filing trays, bulldog clips, paper clips and a stapler.
6. Filing trays marked "Incoming Decisions"; "Processed Decisions"; "Results" etc. can be useful to organise the paperwork.
7. Comfortable chairs and a source of coffee are suggested. This allows the tutoring staff to make use of coffee breaks to review the progress of the simulation and catch up with preparation for the review session.

**Briefing Room**
With a large group, it may be necessary to layout the briefing and debriefing room in rows (lecture room). If the group is small an open U (with the tutor, overhead projector, flip chart(s) etc. in the opening) is usually preferable. This choice is a personal decision of the tutor but, for managers, the open U is better for intra-group contact than the lecture room layout. This is particularly important for the review if the tutor wishes to encourage participant involvement and contribution.

Conference Facilities
The exception to using separate breakout rooms is where the simulation is used at a company conference or where breakout rooms are not available. Here the simulation can be run with teams working at (round) tables spread around a large room. **Add notes here**

**Simulation Check List**

The following check list is for clerical and training centre staff. Most of the requirements are obvious. However, some items may need further explanation.

A **rule** should be provided. This is NOT to draw lines but rather to provide an edge to allow printout separation.

**Work sheets** are provided where, for learning reasons, teams are required, manually, to prepare financial accounts. (This feature may not be supported or required by all simulations.)

**Task briefs** are provided where teams are asked to do special tasks (such as a formal Directors' Report, request further funds, negotiate with suppliers, etc.). (These tasks lengthen the simulation and thus are often not done.)

**Briefs for visitors** should be provided when the tutoring team includes these roles or where senior management wishes to observe or become involved.

Examples of Work Sheets, Task and Visitor Briefs are included in the Supplementary Tasks Appendix.

**Printer supplies** - a spare inkjet or laser cartridge should be provided (as these tend to run out at the most inopportune time). Also check that the paper is compatible with the printer and that appropriate printer drivers are loaded on the computer.

**Hardware documentation** is very helpful if you are using unfamiliar equipment (on-site technical help is also advised). Even if using your own hardware load and check the hardware well before running the simulation.

(**Hardware for teams** is necessary if the simulation is to be used directly by participants or to help with planning. The latter, planning use, lengthens the simulation. Therefore, unless it is necessary for learning, a microcomputer should NOT be provided. If one is provided there is a significant risk that the team waste time operating the microcomputer rather than thinking about strategy and discussing business issues.)

**Directing Staff**

Usually, a single person can run simulations provided there are no more than five teams and the team rooms are clustered about the control centre.

A tutoring team of at least two has benefits. It is especially helpful the first time the simulation is used; if the simulation involves role-playing; where there are more than five teams or involves a very tight timetable (such as at a company conference). The tasks of the directing staff are as follows:

- ♦ **SIMULATION DIRECTOR**
- ♦ **COMPUTER OPERATOR**
- ♦ **(COACH/CONSULTANT)**

The **Simulation Director** is responsible for briefing the teams and managing the learning process. During the simulation and particularly during the early stages, the simulation director may have to answer questions to ensure the teams fully understand the simulation. During these times extra time should be allowed for answering questions (see **Timetable Planning**).

(At conferences the title Game Operations Director may be used in preference to that of Simulation Director or Tutor!)

During the decision-making stage team progress should be monitored and the learning process managed (see **Running the Simulation**).

At the debriefing the tutor should chair the proceedings and ensure that the learning points are brought out (see **Review and Debriefing**).

The **Computer Operator** is responsible for processing team decisions, for ensuring that the simulation control area is kept tidy and keeping adequate records for the review session. (Although the design of the simulation should mean that the need for computing and typing skills is trivial).

The **Coach/Consultant's** role is optional and, usually, is a task for the simulation director. The coach tours the groups and acts as a catalyst or devil's advocate. During these visits the coach advises and questions teams on their objective, strategies and the adequacy of their records and planning procedures.

Because of the nature of the coach's role (which requires in-depth management experience rather than knowledge of the simulation) it is an excellent one for visiting senior management. However, since the coach must not interfere, prescriptively, with the team's autonomy the coach must be briefed on this. (A visitor's brief is included in the **Supplementary Tasks** appendix.)

## Time Table Planning

This section describes how the simulation can be integrated into the course and is a general discussion of timetable development. (Individual simulations show suitable timetables.) These notes discuss the reasoning behind the development of timetables and how to tailor them for a specific course.

### Positioning The Simulation

Simulation may be used in several different ways. The most usual is to integrate a management course where the simulation is run at or towards the end of the course. In this way, it ties together the course and provides a highlight finale. A separate Chapter (Ways of Using Business Simulations) describes the different ways simulations are used, the issues associated with their use and how these link to other learning activities.

### Typical Time Table

A timetable (Figure 10.06) is shown for a simulation of medium complexity. (The timetables for a specific simulation will be provided as part of its documentation.)

| Time | Activity |
|---|---|
| 00:00 - 00:15 | Simulation Briefing |
| 00:15 - 01:30 | Familiarisation & Preparation |
| 01:30 | Submit Decisions for Year 1 |
| 02:30 | Submit Decisions for Year 2 |
| 03:00 | Submit Decisions for Year 3 |
| 03:30 | Submit Decisions for Year 4 |
| 04:00 | Submit Decisions for Year 5 |
| 04:30 | Submit Decisions for Year 6 |
| 05:00 | Submit Decisions for Year 7 |
| 05:30 | Submit Decisions for Year 8 |
| 05:30 - 06:00 | Prepare for Review |
| 06:00 - 06:45 | Simulation Review |

Figure 10.06: Typical Time Table

### Time Table Structure

A simulation progresses through three distinct stages:

- ♦ **PREPARATION**
- ♦ **DECISION-MAKING**
- ♦ **REVIEW**

The **preparation** stage of the simulation is started with a spoken briefing. This should be short and use overhead transparencies. (More detailed information will be provided to the participants in the written participant's brief.)

The preparation stage must be of sufficient length to allow participants to assimilate the participant's manual, set objectives, organise the team and plan basic strategies but no longer.

This shortness is because, only as decisions are made and results are returned, will teams understand the simulation. Depending on the complexity of the simulation, one to two hours' preparation is usually sufficient.

If management planning is to be emphasised and reflection encouraged, a second (and possibly a third) planning period can be scheduled. In the example, a planning period occurs at the end of the fourth simulated period (after submission of the fourth set of decisions). For this, an hour or an hour and a half may be allocated for teams to review, reflect and replan.

If it is absolutely necessary to save time, the participants can receive and be asked to read the participant's brief several days before the start of the simulation. However, be warned, some delegates will not read the briefing and, consequentially, little time may, actually, be saved.

The participants' brief is likely to have been written to ensure a balance between the participant's ability to assimilate information and the amount of information needed to make the initial decisions.

**Decision-making** consists of a cycle where decisions are submitted; entered in the simulator; results returned to teams for analysis and a basis developed for the next set of decisions. Each "decision-cycle" progresses the simulation one period.

To ensure sufficient learning takes place six to eight periods should be simulated. Fewer say four periods, may be feasible where team building is the main objective but this is likely to be at the expense of other learning. More, say ten periods, increase learning. Since this is towards the top of the learning curve, learning efficiency may be lessened and the participants' time wasted. (If there is spare time it is probably better to use this for additional tasks, planning periods, preparing for the review and for the review.)

The first period should be longer than average. This allows submission errors to be corrected and allows teams sufficient time to understand their initial results. (Submission errors are most likely the first time that decisions are submitted. Teams may misunderstand the decision form. Also, it can take time for, even an experienced, tutor to get into the "rhythm" of decision entry!)

In the example one hour is allowed for this first period. However, this depends on the simulation. For all, except the simplest or very complex simulations, between one hour and two hours is usual. This length provides a balance between analysis, the need to make further decisions before fully understanding the simulation and efficient use of the participants' time.

The following decision periods are shorter. The length depends on the simulation, level of the participants' knowledge & experience and the educational objectives. Longer periods, associated with coaching by the simulation director, allow for more thoughtful decision-making. In contrast, shorter decision periods simulate the time pressure inherent in today's world.

If time pressure is too high or, perceived as such, participants will be overloaded. This diminishes learning and leads to disaffection. (This is discussed in detail in the section entitled **Running the Simulation**.) Depending on the number of teams and the computer

equipment, the administrative workload may become a constraining factor on the length of each decision period.

**Review and debriefing** is the concluding stage of the simulation. It provides a final opportunity to ensure that the educational objectives are met. This does not mean that very significant learning has not already taken place - it has. The debriefing and review provide an opportunity for groups to share their experiences, reflect on learning and transfer this to the "real-world".

The length of the review depends on the extensiveness of team presentations and tutor analysis. If teams are going to make formal presentations of, say ten to fifteen minutes duration, it will take at least an hour for them to prepare for this. This obviously lengthens the simulation but also allows the tutor to prepare for the review.

Efficient Use Of Delegate Time
Because simulations are enjoyable and stimulating, delegates can be encouraged to use "spare" time. For example, if the simulation is briefed after dinner on a residential course, delegates will work late. Similarly, groups will cut short lunch breaks and generally appreciate the opportunity to take coffee and tea breaks in their syndicate rooms. (Once four out of six teams worked until 2:30 am, the fifth to 4:30 and the last in shifts all night!) If teams are working late into the evening it is sensible to state the latest that you are available to answer questions - and hope that the teams do not know your room number!

Time pressures can encourage the tutor to attempt to reduce the length of the simulation. This may mean that the preparation period, decision-cycles and review are shortened and the number of decision-cycles reduced. Because simulations provide "transformational" learning and comprehension, if time pressure is increased excessively this will not occur. Yet, without transformational learning and comprehension, the knowledge gained will be meaningless and perceived as such.

## Briefing and Team Preparation
This consists of:

- **TEAM FORMATION**
- **SPOKEN BRIEF**
- **FAMILIARISATION**
- **TEAM ORGANISATION**
- **SETTING OBJECTIVES**
- **DECIDING STRATEGIES**

**Team Formation**
The group must be divided into several teams. Each simulation has an ideal team size, but typically this is between four and five managers. Below four and the workload may be excessive. Above five and group working may become chaotic with one or more participants divorced from the group process.

Teams should be balanced in terms of knowledge, experience and personality. Ideally, each team should have a mix of functional experience and knowledge. If a team perceives that it does not have, for example, financial or marketing skills it will feel deprived. This may be despite full coverage of the subject earlier on the course.

If possible, the team should be balanced in terms of personalities and team working styles. However, experience suggests that this is secondary to functional balance. Further, especially for in-company courses, corporate culture may result in an insufficient range of psychometric styles.

It is received wisdom that teams should be balanced in gender terms (i.e., the "ladies" evenly spread across teams). However, for particularly combative inter-team behaviour

teams can be of the same sex. Be warned, competition between these teams can be very intense!

## Spoken Brief

The spoken brief provides an overview of the simulation. It provides basic information about the business situation and the simulation.

Since managers seem to find it difficult to read and assimilate written material, the provision of this information helps speed familiarisation and reduces misunderstandings.

The simulation should be presented as a learning experience. One where the objective is to learn rather than win. One where it will NOT be possible to make perfect decisions. One where learning and understanding develops throughout the simulation. Only by the end, will teams be making good or even reasonable decisions. This ensures that team expectations are appropriate. They will not make perfect decisions. During the early stages, they may be confused and make poor decisions. In other words, like the real world, it takes time to understand a business and industry. (In the **Supplementary Tasks** appendix there is an optional handout discussing learning through simulations.)

## Participant Familiarisation

The spoken brief provides basic familiarity. The written brief builds on this. It must be re-emphasised, that understanding only comes as decisions are made and the results analysed and discussed.

At the start of the simulation participant workload is high. Teams spend time (perhaps as much as half an hour) reading and assimilating the brief. There is little point in visiting teams during this time. However, when the brief has been read the tutor should tour the teams seeing if they have any questions. (Don't be surprised if they don't! The questions will come; especially as teams make their first decisions and analyse their first results.)

## Team Organisation

It is likely that the teams will attempt to work as a committee with no defined roles. This has advantages and disadvantages. The advantage is that all participants share in the decision process and have a general understanding of the simulation. However, it means that work is duplicated, unproductive arguments may develop and insufficient analysis and thinking is done. Therefore, the tutor should be on guard against this. If necessary, the tutor should question teams about their organisations and their "process" (a handout is provided in the **Supplementary Tasks** appendix).

Often, the team organises itself on a, purely, functional basis. Here separate individuals are made responsible are for marketing, finance, operations etc. without considering the workload or planning. Depending on the simulation this may not be appropriate - some functional areas may need to be split and others combined.

For example, a strategy level simulation might require organising into several product/market groups with an individual responsible for each. Finance might fully occupy another but the management of operations might be a part-time responsibility. In contrast, a tactical simulation might require several individuals responsible for operations and business control. Marketing and product development might be a part-time responsibility.

Besides the functional organisation, the tutor should analyse how the "planning span" is managed. Is the team concentrating only on the current period? Is there any or sufficient analysis of past trends? Is the future predicted and planned? This analysis of the planning span is designed to prevent teams degenerating into "fire fighting" where they just concentrate on the next period's decisions. In these circumstances, teams are not considering the long term or learning from the past. Such teams may be disorganised and in conflict. To rectify this problem, the tutor can question the teams about their goals, past

trends and individual responsibilities. It can be helpful to do this based on how they manage their time in the "real world".

**Setting Objectives**

Eventually, teams should be required to set objectives. However, since objectives must be measurable and achievable, it is unreasonable to expect quantified objectives before running the simulated business for several periods.

During the preparation stage, teams should be encouraged to set broad objectives but not specific ones. After four or so periods, teams should be asked to prepare a written statement of objectives (a brief for this is provided in the **Supplementary Tasks** appendix).

When getting teams to set objectives it may be useful to question these in terms of Profitability, Growth and Survival and to ensure participants understand how and why these are measured.

**Deciding Strategies**

As for objectives, it will not be possible to set definitive strategies before running the business for several periods. When setting strategies and defining objectives, it is common for teams to over estimate market responses, how quickly they can affect the business and underestimate the impact of their decisions on cash flow.

## Running the Simulation

This section discusses and describes the decision-making stage of the simulation. Typically this involves simulating between six and eight periods. Each consists of decision submission, simulation, return & analysis of results, modification of plan and producing the next set of decisions for submission. The section explores:

- ◆ **ADMINISTRATION**
- ◆ **FACILITATION**
- ◆ **LEARNING MANAGEMENT**

Administration covers the clerical entry of decisions, using the simulation software and the production of results. Facilitation involves reactively supporting teams, answering questions and explaining rules and results. Learning Management involves controlling the experiential learning process and, through proactive questioning and feedback, ensuring development objectives are met in an effective and consistent manner (Hall, 1994a).

The separation on facilitation and learning management is deliberate since some academic users of simulations believe that the tutor should take a completely passive stance and not become involved with the teams.

**Administration**

For Tutor Mediated simulations, the administration task consists of entering decisions, running the simulation model, producing and returning results to teams and record keeping.

Decision Entry

Decision entry is crunch time. Teams await the results of their decisions with anticipation. Therefore, rapid input, simulation and the return of results are essential. Yet, time pressure may lead to a mistyped decision or an erroneous decision entered and processed. The chance of a mistyped decision is reduced if a good typist enters decisions and another person does checking.

Despite careful form design, briefing and full instructions in the written brief and, even on the decision form, teams will still misunderstand the rules and complete the form incorrectly. This is most likely to occur when the first period's decisions are made. The timetable should allow for this and teams instructed to check the form with the tutor.

Later, errors are likely to occur when time pressure is increased or just when the tutor thinks everything is going smoothly!

Teams should be encouraged to check the decision form and attempt to complete it legibly. Even, as is usual, this does not happen, the responsibility for misinterpretation is firmly with the team!

To save time, teams should be made responsible for delivering the decisions to the control centre. However, especially if the tutor is running the simulation alone, team should be discouraged from asking questions when submitting decisions. This is because the tutor is involved with decision entry and extraneous discussions will encourage entry errors.

The decision forms should **not** be returned to the teams. This ensures that, if there are any queries, their resolution will be based on the actual submission (rather than what the team believes or insists). Also, since the form is not returned teams must make a copy of it and this encourages them to check it. If necessary, the decisions printed by the simulation software can be returned to teams.

Running the Simulation Model
Running the simulation model is quite straightforward. It may involve modifying the market size and deciding what reports to produce. Market size modification allows business pressure to be adjusted and is discussed in the section on **Managing Learning**. Even if report production is semiautomatic it can be useful to be able to produce additional copies of reports (as described earlier, this may be necessary if three-part paper is not used).

The **reports produced** consist of team results, business research and, possibly, special reports for the tutor. A single team report may be produced or, alternatively, the team report may be in two parts. The first part is short and consists of key results. This, interim, report can be returned to teams to work on while the full reports are being printed. Since the printer is usually the major processing bottleneck this ensures that teams are not kept waiting for their results and are using their time productively.

A possibility is to supply some business research information (in the form of a "newspaper") when decisions are submitted. If this is done teams will analyse this information while their decisions are being processed and the business simulated. (A discussion on a "simulation newspaper" is provided in the **Supplementary Tasks** appendix.)

Business research consists of a series of reports that provide inter-team information. These consist of information on price, market shares, comparative financial results etc. To ensure maximum flexibility, these reports should be selectively printed and returned to teams as required to stimulate thought and discussion.

Tutor Support reports are incredibly useful to compare and contrast team results, to highlight differences, to help identify strengths and weaknesses and to provide information that can be *proactively* provided to the learners.

Although teams deliver their decisions to the control centre it is usual for the tutor to return results to the team rooms.

Computer printout is normally done on a page-by-page basis. To maintain page positioning page feeding should either be done using the printer control buttons (remember to deselect and **reselect** afterwards) or from the software. If it is necessary to divide part of a page a rule can be used to provide a tearing line. (The rule can also be used to rap the knuckles of anyone who attempts mess with the printer.)

Record Keeping

Record keeping is important to help answer questions, evaluate learning progress and prepare for the review. One set of each team's results should be kept with a set of business reports and any tutor reports. Filing these in a ring binder keeps the paper mountain under control. (Regularly remove unnecessary paper into the waste paper basket. Note: If the hotel does not provide a waste paper basket, I find dropping paper on the floor, *magically* causes a waste paper basket to materialise.)

**Facilitation**

The tutor has to facilitate learning by:

- **CLARIFYING RULES**
- **SUPPORTING THE SIMULATION**
- **COACHING**

Facilitation relies on teams asking for support or the correction of obvious misunderstandings. It is therefore reactive and should not interfere with team autonomy.

Clarifying Rules

Clarifying rules involves ensuring that there are no misunderstandings about the rules and terminology. Usually, rule clarification is needed when decisions are submitted. It may include an explanation of the scope of their authority, the areas of the business simulated etc.

Supporting the Simulation

Supporting the simulation involves explaining how results are arrived at. This is necessary because any simulation is a stylised simplification of the real world. The brevity of the verbal & written brief and team results means that the tutor may need to provide additional explanations.

Explanations may help reconciling financial calculations and encourage teams to think how their actions influence market responses. This separation is deliberate. The reconciliation of, say, the cost of sales calculation, is based on "factual" information. In contrast, the reason a team is, apparently, unsuccessful in the marketplace would not normally be fully revealed in the real world. Therefore, even if the tutor knows exact market responses, transmission of this information to teams is unreal and may suppress thought.

Coaching

Coaching involves providing missing knowledge. Unlike rule clarification and simulation support, coaching or knowledge support fills any gaps in a team's knowledge. (If the team has a wide mix of knowledge and experience other team members can provide a large part of knowledge support.)

Facilitation involves responding to questions posed by teams. Therefore, when answering questions remember that only as the simulation progresses will the participants fully appreciate the business situation facing them. Thus, particularly after receipt of the first set of results, teams will ask questions.

There are three sources of information available to the tutor to help answer these questions:

- **THE PARTICIPANT'S MANUAL**
- **THE BACKGROUND NOTES**
- **TUTOR SUPPORT REPORTS**

Despite the verbal briefing and reading the Participant's Brief, teams will miss points and there will be misunderstandings. Also, to help the tutor the simulation manual should include a section describing the "background" to the simulation, the model and suggest

initial strengths, weaknesses, opportunities and threats. If the simulation model is complex it is helpful if, besides normal team reports and business research reports, the simulation software produces a series of reports especially designed to support the tutor.

**Learning Management**

Managing the learning process is controversial. Some academics suggest any "management" of the learning process encroaches on the participants' autonomy and since simulations are "student centred" this should not be done. However, ultimately, the tutor is responsible for successfully meeting development objectives. Therefore, it seems unreasonable and unprofessional for the tutor not to, proactively, identify learning problems and take appropriate actions.

The learning process involves the delegation of learning authority to participants with the tutor continuously measuring progress and intervening if necessary. At the start of the simulation it is helpful to discuss the roles of participants and the tutor. If the participants use the computer, the computer's role should be discussed.

To manage the process effectively it is useful to consider the following:

- **THE SIMULATION PROCESS**
- **EXPERIENTIAL LEARNING**
- **MEASURING, CONTROLLING & FEEDBACK**

The Simulation Process

Although each run of a simulation is different, there are some underlying patterns. These are patterns in comprehension, motivation and workload.

As periods are simulated, participants' understanding increases and they should be climbing the "learning curve". This learning curve is not necessarily as smooth or simple as the classical learning curve. Also, the simulation process is not just objective learning. It has an affective, motivational element (the participants have feelings).

The motivational element is important. If managed well, it increases the amount of learning and satisfaction with the simulation. But, it has to be managed. Participants usually perceive the activity as competitive, with winners and losers. Also, the periodic quantitative feedback of results reinforces feelings of success or failure.

Therefore, it is necessary to manage both cognitive learning (understanding) and affection (motivation and morale). These notes describe how comprehension and motivation develop and change throughout the simulation.

**At the start** of the simulation, teams are likely to be positively motivated as they perceive the session as active, competitive and enjoyable. However, as it usually takes several periods before participants understand their simulated business they are likely to be a little confused.

During the **preparation stage** they have to assimilate the written brief and organised their team. This is likely to increase confusion. Also, since they may have underestimated the challenge of the simulation, their morale may be reduced.

Increasing the length of the verbal and written briefs cannot eliminate this initial confusion. All this tends to increase the early workload and extend the preparation period. Even if the participants fully read the brief (which is very unlikely) they will still not be prepared for the dynamic responses of the simulation model or the actions of their competitors.

Even so, teams will expect their **first decision** to be a good one. But, since they are not fully familiar with their business, do not understand the dynamics of the business and their competitors, the results are often worse than expected. This is not usually a

problem. It will force teams to reassess the situation and concentrate on learning. (The slightly longer initial decision period allows for this.)

Occasionally, with junior, immature, staff, morale and lack of decision-making experience may be a problem. The tutor should encourage participants and remind them that it takes time to understand. It is usually worthwhile to point out that if they make good decisions right from the outset they would not be making productive use of their time in the latter stages. (Although their egos may be rewarded.)

During the **early stages**, team workload will be high and the tutor should not add to this (by providing too much feedback, asking too many questions etc.).

During the **later stages**, as described in the section on Measuring, Controlling and Feedback, the tutor should support the weaker teams and critically question the stronger ones.

Despite any attempt to discount the element of competition, teams will see themselves in competition with the other teams. Therefore by supporting the weaker teams they will not only learn but also, as their results improve, will be motivated. Equally, by critically challenging the stronger teams, these will learn and will question their own perception of success. In this manner, the tutor can ensure consistent cognitive learning and affection.

When the **final decision** is made some teams may attempt to "end game". Invariably this will be unsuccessful. I know of only one occasion where end gaming worked. This was when I was participating in a simulation designed by another. The "winning" team was to be chosen based on a series of defined Financial Measures. Unfortunately, it was possible to take actions that change the final period's balance sheet to "improve" these ratios. As discussed further in the **Review and Debriefing** section, end gaming can be discouraged by not choosing a winner, by discussing performance in terms of past, current and future, reminding teams that the purpose is to learn and, reviewing each team's strengths and weaknesses.

After the final decision, as the decision making pressure ceases, both the participants and the directing staff are likely to be tired. Also, it is necessary to allow time to reflect on the simulation as a whole. Therefore a break between the last decision period and the review session is suggested. This may be no more than a break for lunch or dinner. Or, if more formal presentations are wanted, the break can be overnight, with the review the following morning.

At the **Review and Debriefing Session** teams that perceive that they have done badly may attempt to reduce dissonance and this disaffection will interfere with learning. It is best for teams to criticise their own performance and for the tutor to concentrate on generalising learning and objectively listing key results.

**Overall**, the simulation is likely to have progressed from start where teams are slightly confused about what is needed but are positively motivated. Through a period where confusion increases slightly and teams may become (slightly) disaffected with their performance, to the end where all groups understand their business, have learned and morale is high.

**The Experiential Learning Process**

Having provided a longitudinal view of the simulation this section discusses the process that occurs each simulated period. Kolb's classical model of the experiential learning process has participants cycling through four stages:

- **ACTIVE EXPERIMENTATION**
- **CONCRETE EXPERIENCE**
- **REFLECTIVE OBSERVATION**
- **ABSTRACT CONCEPTUALIZATION**

This maps with the decision-cycle with active experimentation actualised in the decisions; concrete experiences provided by the simulation model and reflective observation and abstract conceptualisation provided while results are analysed, discussed and the business replanned.

There is the danger that, if time pressures are too great, teams will neither reflect nor conceptualise. Having longer "planning" periods built into the timetable reduces this problem. However, the tutor needs to on guard and take action by adjusting the timetable and stimulating thought. (One indicator of insufficient though is a team that submits decisions well before the scheduled time.)

Beside time table based pressure, team disorganisation, too much committee working or conflict between team members can cause pressure. Careful team formation should, hopefully, prevent the latter (conflict). Questioning the team on its organisation and decision-making process is usually sufficient to overcome these problems. If necessary the tutor may have to be more prescriptive.

**Measuring, Controlling & Feedback**

Finally, the tutor should attempt to manage the simulation by (Hall and Cox, 1993):

- **ANALYSING TEAMS**
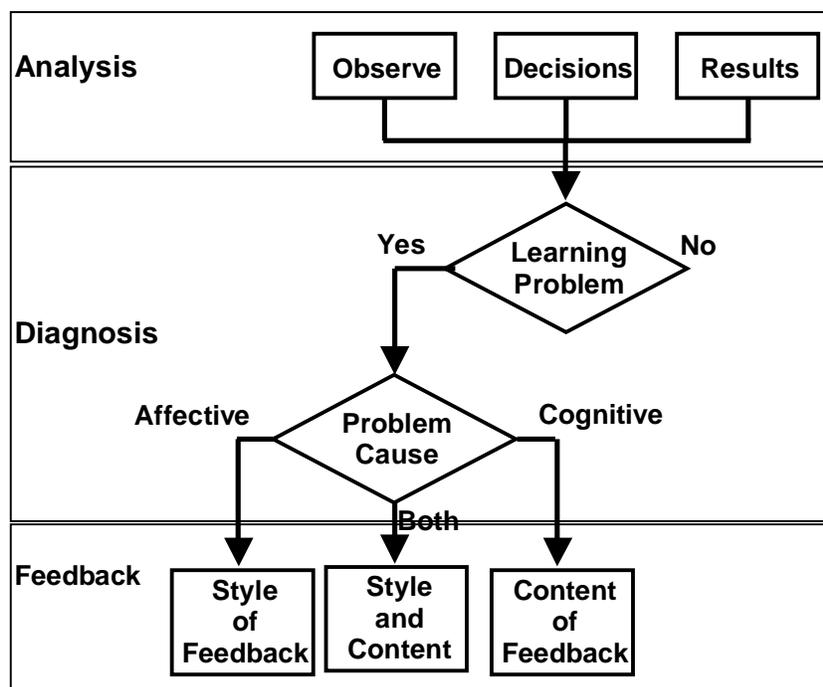- **DIAGNOSING PROBLEMS**
- **PROVIDING FEEDBACK**



Figure 10.07: Tutor Management

Analysing Teams
This can be done by:

- **OBSERVING TEAMS**
- **ANALYSING DECISIONS**
- **REVIEWING RESULTS**
- **TUTOR REPORTS**

**Observing Teams:** The tutor should visit each team to answer question and to observe how the team is working (its understanding, motivation and behaviour). This is, possibly, the best way of diagnosing problems. Unfortunately, the tutor's time will be limited and he or she must remain available to answer the other teams' questions. Also, teams usually prefer to work on their own and will, actively, discourage too frequent or long tutor visits.

**Analysing Decisions:** As decisions are entered it is sensible to scan them to see if they "make sense". Specifically, do they suggest the team misunderstands the business issues facing them or are they making arbitrary decisions (where the team is attempting to "break the model"). Unfortunately, since the tutor needs to enter and process decisions quickly there is often little time for this.

**Reviewing Results:** Usually the tutor has sometime to review results. This review should not just attempt to identify misunderstandings and business weaknesses but also compare results between teams. This inter-team comparison will suggest which teams are relatively unsuccessful. These teams may need coaching and may need encouraging.

**Tutor Reports:** An advanced, complex simulation should provide a series of reports especially to support the tutor. These provide pre-digested information to explain results, diagnose problems, list team strengths and weaknesses and provide, optional, feedback.

Diagnosing Problems
Based on the on-going analysis the tutor should identify which teams are having problems. These problems may be of understanding (lack of business knowledge) or motivation (disaffection) or both. Ideally, these problems will be identified early and the tutor can take appropriate corrective actions before teams realise they have a problem. For instance, if a team's results are poor, the tutor should identify the reasons and, while returning the results, question the team appropriately.

Providing Feedback
The tutor should correct problems through feedback. In deciding what additional feedback to provide the following must be considered:

- **CONTENT**
- **STYLE**
- **AMOUNT**

**Content:** Depending on the problem, the content of the feedback can involve perceptive questioning, a mini-tutorial, additional computer based reports, a general "Financial Newspaper", etc. (A regular "Financial Newspaper" is useful to provide subjective, general information. In other words, it provides general hints and suggests where thought is needed.)

**Style:** The style of the feedback depends on the morale of the team. It ranges from positive (for teams that perceive they are unsuccessful), through neutral to critical (for teams that are manic with their success!).

**Amount:** The amount of feedback depends both on need (content) and the team's current workload. During the initial stages, while workload is highest, feedback should be constrained. Later, the tutor can either increase work pressure by shorting the decision period or by increasing the amount of feedback.

If the decision-cycle is reduced (as illustrated in the timetable) the tutor must ensure that the shorter periods allow enough time for planning and that none of the teams degenerate into fire fighting.

If all teams are relatively unsuccessful (with low profitability etc.) it may be necessary to increase the time between decisions or adjust the business environment. Increasing the time between decisions give teams time to think about and reflect on their business.

It may be necessary to stimulate teams to think by questioning them. This questioning might be about the team's objectives and how they are using the information. As in the example to the right, this questioning should not detail problems or suggest solutions.

Besides providing more thinking time, the simulation may allow the economic environment to be adjusted. The most usual method is to increase the size of the market. This should increase gross and net profit (especially if the business has a high level of fixed costs). Profitability should increase (greatly if teams are operating well below capacity). Increased market size may cause cash flow problems but price increases can correct this (by lowering demand and increasing the profit margin).

## Review & Debriefing

The review and debriefing provides an opportunity for teams to share their experiences and for the tutor to ensure that all the learning points are born out. However, the teams will still feel in mutual competition and this will colour the session.

These notes provide some pointers for the review and debriefing session and cover:

- **INTRODUCTION**
- **A SCHEDULE**
- **ANALYSING PERFORMANCE**
- **POSSIBLE PROBLEMS**

### Introduction

Remember the teams will have been working in a very active, competitive, student centred way. This has several implications.

Participants will not appreciate being told what they did wrong. This is because they will have a sense of ownership over their company. Also, it will cause weaker teams or those that perceive they are poor managers. They will reduce this dissonance by attacking the experience. Yet, it is usually easier to identify weaknesses rather than recognise strengths. Also, weaknesses show learning needs and therefore must be discussed.

If there is time, teams can be asked to make a short presentation (a brief is included in the **Supplementary Tasks** appendix). They should be asked to report on their objectives, strategies, and the future of the business. Besides this, they should report on process (how the team was organised and worked) and learning (what they can transfer to the work place).

Whether, teams are questioned during their presentation or comments are saved to a later stage depends on the tutor. If possible, based on the teams' presentations and the actual progress of the simulation, the tutor should attempt to draw out and generalise learning points. This can be done in the usual ways - by questioning, by linking points to events in the simulation and by encouraging discussion.

### A Schedule

A possible schedule for the review session is:

- **TEAM PRESENTATIONS**
- **QUALITATIVE DISCUSSION**
- **REVIEW OF RESULTS**

By placing the team presentations at the beginning, many learning points will be raised by the participants. During the qualitative discussion, the tutor can refer to these, put an alternative viewpoint and generalise the learning. Team presentations usually take about half the review.

Teams will still be very involved with their own companies, so it helps if the qualitative discussion is general rather than specific. In other words, the tutor should concentrate, whenever possible, on the results of the group as a whole and draw parallels (if possible) with other simulation runs and the "real world". If specific team results are alluded to it is beneficial to ensure that the weaknesses of the most successful teams and the strengths of the weakest teams are highlighted. Often, all the learning points can be drawn out in this manner. If it is necessary to comment on the weaknesses of the least successful teams then attempt choose situations where the team has or is rectifying the problem.

During the last few minutes of the review team results are reviewed in financial terms. When reviewing these financial results, if possible, the tutor should highlight the strengths of all teams and the weaknesses of the best teams.

**Analysing Performance**
The analysis of qualitative and financial performance will be based on the following information:

- ♦ **ACTUAL TEAM RESULTS**
- ♦ **TUTOR REPORTS**
- ♦ **SUMMARY STATISTICS**
- ♦ **VISITING THE TEAM ROOMS**

The actual team results show a team's current position. When coupled with the tutor reports (if these are provided by the simulation), results show likely causes of poor performance. The progress of the teams over time should be analysed. Besides the objective measurement of team performance based on computer based statistics, it is helpful to visit each team's "Board Room" regularly to assess their organisation, how they working as a team and the "quality" of their discussion.

The review of a team's business should cover these aspects:

- ♦ **CURRENT BUSINESS POSITION**
- ♦ **CUMULATIVE RESULTS**
- ♦ **THE FUTURE**
- ♦ **INEFFICIENCIES**

Current Position
This shows where the team is at the end of the simulation and the information is readily available from the last period's reports.

It is sensible, to hold back the last period's comparative accounts. That is to say, instead of providing these as usual they are retained by the tutor for presentation at the end of the review. This increases expectancy and means that teams are not discouraged if their results are, relatively, worse than anticipated. Of course there will be a certain amount of moaning and teams will state they cannot prepare their presentation without this data. However, it is always possible to suggest that by this time their forecasting should be good enough to overcome this.

Cumulative Results
This is usually provided by the simulation and is useful for the review. On one hand, these results show the consistency of a team's performance. However, since the purpose of the simulation is to learn, poor performance in the early stages of the simulation should be discounted. This can be done in several ways. Instead of accumulating all the results, just use the last four periods. Also, the simulation may project trends in team performance

and these projections may be used. Even if this data is not available, the tutor should attempt to discuss future trends.

The Future
Teams should be asked to discuss the future of the business. Further, learning should have been shown by trends in financial performance. Finally, although it may be possible to decide, based on past and current results, which is the "best" team, predictions of the future are less certain. This lessens feelings of winning and losing. Certainly, it is advisable never to choose a winner.

Inefficiencies
Some simulations take performance evaluation further and attempt to assess where teams waste money through poor forecasting and control. These simulations gather statistics on profits lost through inventory shortages, through over capacity, over promotion etc. This "efficiency loss" information can generate useful discussion.

**Possible Problems**
In planning the review session there are several problem areas to consider:

- ◆ **INADEQUATE PREPARATION TIME**
- ◆ **INADEQUATE RECORDS**
- ◆ **GROUP STRESS**
- ◆ **EXHAUSTION!**
- ◆ **POOR PRESENTATIONS**

Inadequate Preparation Time
Because of the pressure to increase learning efficiency the tutoring team will be small (often only one person) and little time may be available between the last decision and the review. This will limit the amount of time available for preparation and both the participants and the tutor may be unprepared.

However, equally, it is possible for the tutor to be over prepared. Over preparation can result in a prescriptive, inflexible review where the tutor "shuts down" discussion by telling the participants where they "went wrong".

Inadequate Records
To ensure that the review is based on actual results (rather than a team's or individual's imagination!) it will be necessary to ensure that each team keeps adequate records. There are several ways of doing this.

1. Ensure that during the simulation briefing the teams are told that they must present a management report at the debriefing and be reminded of this during the simulation. One way of doing this is to furnish the **Board Presentation** briefing about half way through the simulation. (This is sufficiently early so teams can think about the presentation yet not interfering with the early strategy forming stages.)
2. Directing staff should keep records of team results and note significant points - a tape recorder can be a useful aid.
3. During the decision-making stage the directing staff should ensure that teams are keeping adequate records and that they have clearly stated (and realistic) objectives, strategies and measures of performance.
4. As the simulation progresses, copies of team results, tutor reports etc. are filed in a ring binder.

Stress
Because the simulation is designed to be a learning experience rather than a competition it is helpful if this point is emphasised at the simulation briefing. Further, during the simulation, it should be possible, through judicious help for the weaker teams, to ensure that there is no team that is significantly more or less successful that the others.

During the simulation team members will become closely and emotionally involved with the simulation and the quality of their decisions. In the review session it will be necessary to discuss both their successes and failures. This means that the climate for the review session must be prepared with care.

In measuring team performance it is advisable not to select a specific measure (such as total revenue or average return on investment). The tutor should emphasise that each team is responsible for setting its own objectives. This will mean that, at the debriefing, teams can discuss relative measures of performance from both the short and long term viewpoint. This should effectively cloud the issue of the choice of a winning or losing team. If no measure of success is defined and where teams finish in relatively equal positions each participant can feel that his team would have won if only the simulation had been longer!

Finally, the use of humour in the review session should be encouraged, as this will tend to reduce stress.

Exhaustion!
The pressure of work on the teams and the tutor over a long period (perhaps several days) coupled with the, possible, emotional stress on teams, means that all are tired. Thus, it is possible for the review to be an anti-climax. A break between the last decision and the start of the review allows for this and allows preparation for the review.

Poor Presentations
The board presentation provides much needed business presentation practice. Even with a written brief explaining what is required, presentations are often poor. Even if visual aids are used they may be illegible. Also, perhaps more importantly, teams will still see themselves in competition and this will colour their presentations. As a result, the presentations will not be sufficiently self-critical. (It can be useful to award BS points for especially gross examples of bovine excrescence!)

Teams should be encouraged to be brief and, if possible, humorous. Since there is a tendency to overrun, if a fifteen-minute presentation is required the teams should be asked to prepare for a ten minute one!

# Direct Use Simulations

These simulations (Figure 10.08) involve teams making **direct use** of the simulation software (simulator) on their own microcomputer or while sharing a microcomputer with one or two other teams.



**Team with their own**

**Team with their own**

**Trainer mentoring**

**Team with their own**

**Team with their own**

Figure 10.08: Direct Use Simulation

The simulations that use this approach are:

§ **Concept Simulations**
§ **Functional Simulations**
§ **Planning Simulations**
§ **Process Simulations**
§ **Enhanced Role-plays**

The first two activities differ from the total enterprise simulation by focusing on areas of the business. For **Concept Simulations** this is on a small range of business concepts (such as the Product Life Cycle). For **Functional Simulations** the focus is on a single functional area (such as Operations).

Unlike simulations, where time progresses as each period is simulated, **Planning** and **Process Simulations** involve exploring different courses of action and, then, recommending the *"best"*. Therefore, they replicate the case study but with an emphasis on quantitative aspects. Planning exercises involve preparing a plan or budget. Process simulations involve analysing several data sets to prepare a forecast or identify problems.

**Computer Enhanced Role-Plays** make use of models to help the role-play. Typical of this approach are sales negotiation role-plays

These notes cover the use of direct use simulations by participants. However, for complex functional simulations and where teams are using a Decision Support System as part of a complex total enterprise simulation, the guide to tutoring "Tutor Mediated Simulations" should be read first and these notes regarded as an appendix. In other words, these notes stand on their own for short (two to four hour) concept and longer, non-interactive functional simulations, planning and process simulations and computer enhanced role-plays.

## Process for Non-Interactive Simulations

These are simulations where the decisions of one team do not interact with the others. This is the case with most very short simulations and a few complex functional simulations.

The process involves a short briefing (perhaps only five minutes). The group then splits into teams of, perhaps, only three or four to work on the problem. After analysing the brief and deciding broad objectives, the team enters its decisions into the microcomputer and receives printed results. These results are analysed, the plan adjusted and further decisions are entered into the microcomputer. Depending on the simulation this process is repeated six to twelve times. The group then recombines for a short review.

Because the teams enter decisions when ready the teams do not make synchronous decisions as is true with interactive simulations (where one team's decisions affect the other businesses) and this reduces the time taken to work on the simulation.

## Tutoring Need
Although the participants make direct use of the simulation software this does NOT eliminate the need for a tutor. In certain respects tutoring is more important if learning is to be assured.

## Opportunities
Before discussing the tutor's role, the scene is set by discussing the opportunities associated with the direct use of simulations.

The direct use of simulations seems an obvious step. Microcomputers are universally available both in offices and at training centres. Because of this it seems natural that they should be available and used on management development courses. Also, it is a common expectation of delegates that a microcomputer will improve learning effectiveness and productivity.

Increase Learning Productivity
Potentially, the direct use of microcomputers can save time. The conventional tutor mediated simulation requires decisions to be submitted at predefined times. All decisions must be entered, simulated, results printed and the results returned in unison. Even with a skilled typist, well-designed software, a fast microcomputer and printer, this processing takes time. Time where teams may be idly waiting, with hopeful anticipation, for their results.

By allowing teams to enter their own decisions considerable time can be saved. The timetable does not have to reflect the speed of the slowest team. Although this does mean is that slower teams may simulate fewer periods. However, experience suggests that although some teams start slowly they speed up. Equally, teams that start rapidly, without sufficient planning and thought, often slow their rate of decision-making as they find the problem more challenging than anticipated.

For very short, two to four hour, sessions the direct use of the simulator is, probably, the only viable approach.

As it can take time for participants to become familiar with the software this increase in productivity may be illusory. This is especially true where standard spreadsheets are used for the simulation. (Spreadsheets are designed to simplify developing models. They are not designed for use by a third party for "What-If" planning. Also spread sheets and application software may have superfluous features that can confuse the novice user.) Unless carefully designed, learning how to use "direct use" simulations can take considerable time and, even then, its use may be error prone.

Increasing learning productivity is not beneficial if learning effectiveness is reduced. As discussed later, some teams may not spend enough time thinking and the very speed of the microcomputer takes over the process and in doing so diminishes learning.

Computational Power

By placing a microcomputer in a team room participants have access to computational power and encapsulated mathematical skills. In other words, the participants do not need to know about mathematics and statistics to use techniques based on these to unravel a business problem. This provides opportunities for new learning experiences (such as planning simulations and statistical analysis) and can enhance conventional, tutor mediated, simulations (by providing decision support systems).

Further, today's manager expects access to a microcomputer to do arithmetic. Although whether this is due to their actual previous experience with microcomputers or, whether this is because of their fear of numbers and difficulty with basic arithmetic is debatable.

The provision of packaged arithmetic support can mean that participants do not think through or understand the calculations. Further, teams may become mesmerised by the computer and consequentially the amount of strategic thinking is reduced.

## Tutoring Considerations

The tutoring of direct use of simulations in most respects is the same as tutor mediated simulations. The main differences that must be considered are:

- ♦ **BALANCING THE EXPERIENTIAL**
- ♦ **TEAM MAKE-UP**
- ♦ **HARDWARE NEEDS**
- ♦ **INFORMATION SHARING**
- ♦ **TEAM FACILITIES**
- ♦ **KNOWLEDGE NEEDS**
- ♦ **REVIEW AND DEBRIEFING**

### Balancing the Experiential

Direct use of the simulation by participants can lead to problems especially teams concentrating on experimenting with the simulation and not spending time reflecting and conceptualising (short circuited experiential – Figure 10.09).

In other words the experiential learning cycle breaks down and this results in dissatisfaction with the experience. and, after the session, when individuals realised that they have not learned anything. A well designed simulation ) (Hall, 1996b) encourages participants to spend sufficient time thinking. But, the tutor must visit each team in turn to ensure that they are spending enough time thinking. And, in extremis can *"drag the participants screaming and kicking"* away from the microcomputer.
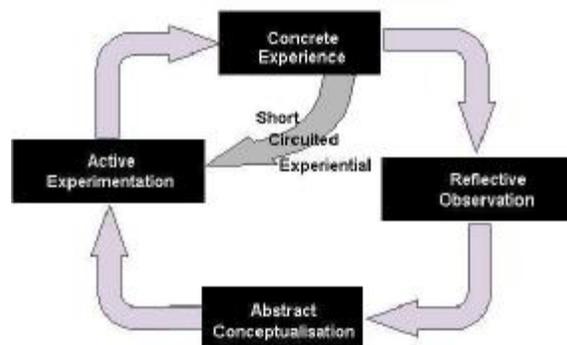


Figure 10.09: Short Circuited Experiential Learning

But, usually, all that is necessary is to question the learners on their objectives, strategies and analysis of the results so far.

As learners not be able to decide their objectives before making some decisions and may become so enamoured with the experience they may forget objectives. By pressing a group to decide objective they are forced to focus on these. (After all "if you don't know where you are going any road will get you there".)

It may be useful to suggest that one *"key objective"* can be chosen to optimise. Following this, several *"secondary objectives"* should be chosen and minimum performance levels

set for can. This ensure that learners have a target but realise a single objective is unreasonable.

Once objectives are set the tutor should note these (for the review session and to remind forgetful teams). These objectives can be written on a flip chart and displayed prominently. However, the tutor may not wish to do this immediately. Rather he or she might wait to see if teams do it. Only if this is not done (and the team is drifting away from focused discussion) should the tutor remind the team of its objectives. (By writing them on the flip chart, perhaps without comment!)

**Team Formulation**

For short, simple, two to four hour simulations, teams may be as few as three or four participants. Teams of less than three should be avoided as there will be insufficient interaction.

Again, for short, simple simulations the restricted scope and knowledge needs means that it is not usually necessary to balance the team in terms of knowledge and experience.

**Hardware Needs**

Several microcomputers, each with a printer, must be provided. The provision of a printer allows results to be printed. The printer overcomes the problem of restricted screen size and, more importantly, allows teams to withdraw from the computer to discuss the results. This withdrawal ensures reflection, thinking, discussion and argument.

Usually one microcomputer and printer is required for each team but, with some simulations, it is possible for two or three teams to share a microcomputer. By sharing, teams are forced to think and plan carefully before they use the microcomputer.

Sharing a microcomputer may be necessary if the simulation is being run in a hotel where there is only a portable computer and printer. Under these circumstances, time can be saved if the tutor enters decisions for the teams. Because of the tutor's knowledge of the simulation and the simulator, it may be possible for up to four teams share the same microcomputer. This means that a group of up to twenty can be accommodated. Also, this approach allows the tutor to evaluate decisions, judge learning and provoke discussion.

Because the microcomputer is now central to the learning process it is advisable to have a spare machine and printer. Also, software compatibility must be checked. This is especially important if the computers are connected to a "user friendly" network,

Another problem occurs where the simulation is run on the client's computers. Here *fire walls* may make it difficult to load the software and where the simulation is run on client computers the software should be loaded well before use and it may be necessary to have support from technical staff.

**Information Sharing**

Tutor mediated simulations (where the decisions are processed by the tutor) automatically provide facilities to share "business research information". However, usually, this is not true of direct use simulations. Yet, sharing information is valuable. Sharing information enriches the team's knowledge of the situation they are managing.

If a team is diverging, either in terms of results or speed of decision-making, sharing information provides a corrective mechanism.

Teams whose results are poor and are making decisions too rapidly will be driven to spend more time thinking. Equally, teams that making decisions too slowly will increase their rate of decision-making.

**Knowledge Needs**

With the direct use simulations the tutor does not, normally, see team decisions and results. Yet this is important to judge a team's need for coaching and how their learning is progressing. Therefore the tutor must visit teams to gather this information. Also, much of this information is necessary for the review session.

**Facilities**

Teams can be located either in separate rooms or in a single large room.

Using individual team rooms has the advantage that teams can make charts and operate in complete privacy. But, it makes it more difficult for the tutor to observe and correct team behaviour. The tutor is less available to answer questions and to question the team. Also, since the tutor is outside the decision-processing loop, it is more difficult to identify problems if the teams work in separate rooms.

In contrast, spreading the teams around a large room allows the tutor to observe team behaviour. The tutor is immediately available to answer questions, ask questions and share information. Also, a single room can be used for the whole course.
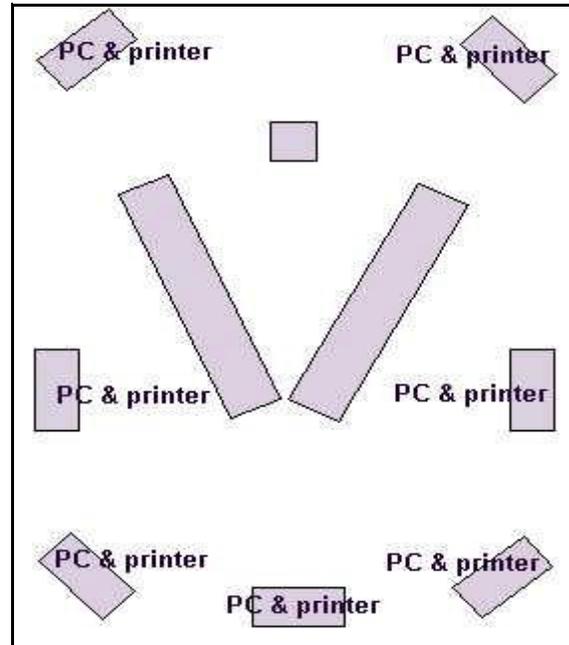


Figure 10.10: Layout of single large room

An example of a suitable layout is shown in Figure 10.10. Here, the briefing and debriefing are done with the delegates sitting around the central tables (arranged in a V). During the simulation phase, teams split to work around the PCs & printers.

**Review and Debriefing**

Decision Support use (part of a conventional, interactive simulation) and long functional simulations may have a long review with each team giving a "board presentation". In contrast Direct Use simulations are generally short (two to four hours) and therefore the review must be short (possibly no more than fifteen minutes).

Short reviews means that there is not time for teams to prepare. Equally, the tutor does not have time to prepare. Therefore, these reviews must be more structured than those for longer simulations.

A series of questions should be prepared with a proforma to display and compare key results. It also helps if the tutor notes highlights as the session progressed.

## SIMULATION CHECK LIST

### TEAM MATERIALS (one per participant plus spares)

- [ ] PARTICIPANT'S MANUALS
- [ ] DECISION FORMS (for Tutor Mediated Simulations)
- [ ] RECORD SHEETS (for Direct Use Simulations)
- [ ] ROUGH PAPER
- [ ] GRAPH PAPER
- [ ] PENS OR PENCILS
- [ ] CALCULATORS

### TEAM ROOM EQUIPMENT (one per room plus a spare)

- [ ] TABLES
- [ ] CHAIRS
- [ ] WHITEBOARD OR FLIP CHART
- [ ] DRAWING PINS, MASKING TAPE OR BLU-TACk
- [ ] RULES
- [ ] STAPLER OR PAPER CLIPS
- [ ] MICROCOMPUTER & PRINTER (optional, see note)

### MATERIALS FOR TUTORS

- [ ] TUTOR'S MANUAL
- [ ] (PARTICIPANTS' DOCUMENTATION ON CDROM)
- [ ] BRIEFING TRANSPARENCIES
- [ ] STAPLER, PAPER CLIPS & PAPER PUNCH
- [ ] POWER SUPPLY EXTENSION LEAD(S)
- [ ] DRAWING PINS, MASKING TAPE OR BLU-TACk
- [ ] PRINTER PAPER
- [ ] SPARE PRINTER CARTRIDGE
- [ ] (PRINTER DRIVER)
- [ ] RULE
- [ ] RING BINDER FOR RECORDS (for Tutor Mediated Simulations)

### EQUIPMENT FOR CONTROL ROOM

- [ ] MICROCOMPUTER
- [ ] MOUSE
- [ ] MOUSE MAT
- [ ] PRINTER
- [ ] PRINTER CABLE
- [ ] COMPUTER TABLE AND CHAIR
- [ ] WORK TABLE
- [ ] VISITORS' CHAIRS
- [ ] LARGE WASTE PAPER BIN
- [ ] FLIP CHART
- [ ] EXTENSION CORD (& ADAPTER)

### OPTIONAL ITEMS

- [ ] FILING TRAYS
- [ ] WORK SHEETS
- [ ] TASK BRIEFS
- [ ] PRINTER PAPER
- [ ] BRIEFS FOR VISITORS
- [ ] HARDWARE DOCUMENTATION
- [ ] HARDWARE FOR TEAMS