

Chapter 12: Why use Business Simulations

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Introduction

A key question for my Churchill Fellowship study was ***Why do companies use business simulations?*** as the answer helps define the simulation session's learning needs and objectives. Answering this involved an analysis of about two thousand runs of simulations with thousands of managers over a twenty-five year period coupled with discussions in the UK, Europe and the USA with trainers, course designers, training providers and training managers.

The reasons identified separated into five areas of:

- ◆ **Exploring and Challenging Knowledge**
- ◆ **Skills Development and Practice**
- ◆ **Motivation and Engagement**
- ◆ **Assessment and Evaluation**
- ◆ **Enhancing Learning**

Although each of these is described and discussed separately they are not independent. To an extent, these dimensions reflect different views of the session and this is reflected by the overlap between them.

Although it is a structure that I developed specifically based on an analysis of why companies used business simulation, the reasons may be useful for use with a wider range of development methods.

Exploring and Challenging Knowledge

Although simulations are not good at introducing new material they provide an excellent way of exploring knowledge and testing understanding. The knowledge that is to be exercised can be viewed in several ways:

- ◆ **Course Derived Knowledge**
- ◆ **Prior Learning & Experience**
- ◆ **Needed by the Simulation**
- ◆ **Individual Knowledge**
- ◆ **Group Knowledge**

Obviously the prime reason for using the simulation is to exercise the new knowledge presented on the course. However, the shortness of most management courses means that there is generally a need to use and exercise prior learning and experience. Also, exercising and using prior learning serves to refresh the learning and extend the *half-life* of the learning.

Ideally, a simulation must be chosen to map closely with the course knowledge. However, the scope of the simulation scenario and the complexity of the model may mean that a wider range of knowledge is needed and if this is not covered by prior learning then coaching, additional readings or even course modification (as a last resort) may be needed.

When matching knowledge needs we need not just look at individual participants since they are working as part of a team, they can share knowledge and experience and learn from each other. (This can be aided by forming "balanced" teams (see Chapter 10: Tutoring Business Simulations.)

As microcomputers have proliferated, so too have the areas where simulations can be used for management development. Common uses are as follows:

- ◆ **Strategic Management**
- ◆ **Developing Business Acumen**
- ◆ **Tactical Management**
- ◆ **Business Appreciation**
- ◆ **Marketing Management**
- ◆ **Marketing Appreciation**
- ◆ **Financial Management**
- ◆ **Financial Appreciation**
- ◆ **Operations Management**
- ◆ **Application of Techniques**
- ◆ **Illustration of Concepts**

The content choice defines the simulation scenario, its model, the decisions made and so provides an initial selection filter.

The Total Enterprise Simulations

The first four areas (strategic management, business acumen, tactical management and business appreciation) involve running a "total enterprise" but differ in scope and complexity. (With strategic management focusing, in depth, on external issues and business direction, business acumen developing fundamental financial knowledge, cross functional experience and an understanding of commercial purpose, tactical management on internal issues and efficient control, and business appreciation involves understanding how a business *works*.)

Not only do these simulations differ in terms of focus, they differ in terms of target audiences. Strategic Management simulations are suitable for senior and middle management and *high-potential* junior managers. Business Acumen simulations are suitable for specialists, junior and middle management and if used in an accelerated manner for more senior managers. Tactical Management simulations are suitable for middle managers. Business Appreciation simulations assume that the learners do not have a fundamental understanding of how a business or industry works. Therefore they are suitable for university students and staff who need to understand the issues facing their customers.

Functional Simulations

Besides exploring the operation of a complete business, simulations are used to reinforce functional learning at two levels: management and appreciation. The first provides an in-depth experience of the function. At the second, they provide an opportunity for junior management and management of other functions to appreciate. For instance, a simulation designed for financial appreciation can be used as the "anchor" session for a "Finance for Non-Financial Managers" course.

Application of Techniques

Utilising a simulation to allow the participants to apply the knowledge gained to a "real world" problem can enhance courses that cover subjects such as Project Management or Sales Forecasting. In doing so, they explore the application of techniques, business processes and the practical "real-world" implications.

Concept Illustration

Finally, very short simulations can be used to illustrate concepts (such as product life cycles). These provide an opportunity to apply knowledge gained while coaching and correction is still possible.

Skills Practice and Development

The practical nature of simulations provides an opportunity for participants to practice their management skills. The most practised by simulations are:

- ◆ **Analysis & Diagnosis**
- ◆ **Decision Making**
- ◆ **Problem Solving**
- ◆ **Handling Ambiguity**
- ◆ **Handling Uncertainty**
- ◆ **Managing Business Dynamics**
- ◆ **Team Working**
- ◆ **Business Presentation**
- ◆ **Numeracy**

Analysis & Diagnosis

There are no managerial panacea although there does seem a considerable amount of "received wisdom" (the managerial equivalent of not walking under ladders or black cats are lucky (or unlucky depending on your culture)).

For instance, running with zero inventories utilising JIT (Just In Time) is seen as a "good thing". However, before deciding inventory policy one must analyse the procurement, production and distribution systems; must consider demand patterns and needs (and how these can be influenced); product structure etc. etc. (I remember discussing the idea with senior management of a major engineering group who felt that JIT was a fiendish ploy to destroy companies!)

The need for analysis and diagnosis is becoming greater as industrial and technological change continues to accelerate. This is because new problems and opportunities cannot be handled with old "*formulas*" (and I wonder if they ever were). There is a need to practice this skill especially since, it is an intrinsic element of the "learning organisation".

Further, analysis and especially diagnosis, requires managers to have a clear understanding and idea of business goals and financial objectives. This focus is discussed later (in motivation needs). Also, there is a need to explicitly explore and understand the implications of these goals and objectives.

Other training methods, notably case studies, provide opportunities for practice in analysis and diagnosis. However, this is complementary to simulation. Case studies tend to emphasise the static, qualitative analysis of the past. Simulations tend to emphasis dynamic, quantitative analysis. Analysis that is used for future actions and is "proved" by the simulation model.

Decision Making

Analysis and diagnosis provides a starting point for decision making. The simulation allows participants to decide whether a problem exists and its relative importance. But, next there is the need to create innovative possible solutions, evaluate this, balance reward and risk before choosing the "best".

Both simulations and case studies provide practice in decision making. However, with simulations, the simulation model objectively assesses the results of the decisions. This contrasts with case studies, where the assessment of the decision is based of discussion and, possibly, what actually occurred.

Because the simulation provides "hard" objective feedback on the decisions made, there is a risk that decisions are shown to be "wrong". This is good learning but participants may be disaffected.

- The Trainer's Dilemma -

Bad decisions produce good learning but unhappy learners.

And good decisions produce happy learners but bad learning.

Problem Solving

Analysis & diagnosis and decision making are part of problem solving but, it extends through implementation, monitoring and control. Simulations repeat this process several times and so provide practice in problem solving to improve and maintain performance through changing situations, needs and understanding.

In other words, like the real world, you may not get it right first time but eventually you should strive to do so. This has implications in terms of simulation design and learning management. Initially, time pressures and lack of information will produce suboptimal decisions. But, by the end, the problem should be solved (or the solution in sight). (This mitigates the problem illustrated in the sidebar above).

Problem solving ability is, perhaps, the key managerial skill and, so, practice in a controlled, coached environment is vital. Simulations are one approach; others include on-the-job mentoring and internships.

Handling Ambiguity

The world is ambiguous. Information is incomplete and contradictory. Yet decisions have to be made.

Parenthetically, the ability to handle ambiguity seems linked to experience. I have observed that junior managers and specialists are less able to make decisions under conditions of ambiguity (and uncertainty). They wish to have full knowledge before committing themselves. At the other end of the spectrum, experienced senior managers seem able to trust themselves to make decisions even though information is limited.

Handling Uncertainty

The world is uncertain and erratic and becoming more so! Yet, in school we are encouraged to view the world as deterministic. For instance, if I were to ask you how long it takes to get to work, you are likely to respond with a single number. Some of you might respond with a range. Yet, if you were asked when you start work and when you leave home, the difference between the two numbers is not likely to equate to your first, single estimate. Rather, the difference between this number and the original estimate, is an indicator of your attitude to punctuality (although, for the younger generation, the difference may indicate their inability to handle uncertainty). Finally, if you had an important meeting at the start of the day (with your boss, customer, the new, attractive member of staff), when would you leave home?

In the "real world" uncertainty is uncertain. But, with simulations, uncertainty is predefined. And, since other teams have similar levels of uncertainty, you can compare and contrast how you handled uncertainty and how "risk and reward" was balanced.

Finally, managers often underestimate the degree of uncertainty. Regularly, on Sales Forecasting courses, I have asked senior sales and marketing managers to analyse sales history. Although these executives are able to identify trends they consistently understated the variation in sales. Typically, for the data I used, they suggest that this was about five percent. Actually, the variation in the data was thirty percent. (The sales data was "real" from a "smoothly" selling product!)

Managing Business Dynamics

Simulations are perhaps unique in allowing the exploration of business dynamics. For example, many times I have seen teams misjudge the time it takes to distribute stocks across the world. They expected, like Star Trekkers, that stock could be instantly "beamed" from the factory to the customer.

Simulations allow participants to explore how their decisions influence the business over time, how parts of the business interact, the balance between the short and long term, etc. For business dynamics, like riding a bicycle, practice is much, much more effective than explanation.

Team Working

Simulations involve teams of managers working on a business problem. Where, usually, all members of the team are at a similar level in the organisation. So, team working on courses does not have the regulatory control of a senior manager as chairman. This makes increases the difficulty of team working and so, perhaps, provides better practice. (However, the increase in the use of "cross functional project teams" coupled with "empowerment" suggests that these team working skills are paramount and so must be practised.)

The simulation allows these skills to be practised so that the team works towards defined and explicit goals, ensuring each team member contributes and is involved, etc.

Obviously, this opportunity exists with other training methods (discussion, case studies and role-plays) but, equally, other methods (lecture, reading and C.B.T.) do not exercise this skill. (Although, a poor lecture can stimulate team working activity!)

Business Presentation

Often, formal business presentations are made part of the review session at the end of the simulation. Not only does this provide the participants with the opportunity to express and "sell" their ideas but the preparation for the presentation and discussion at the review enforces reflection and conceptualisation and so enhances learning.

Numeracy

The microcomputer and suitable software means that skills that have been the province of specialists can and have now been delegated to the average manager. So, for instance, in the 1970s financial planning was the province of the accountant. Today, one can use computerised spreadsheets to do this work (eliminating the need for accountants). Similarly, statistical software allows forecasts and analysis to be done by the average manager rather than the statistician (who might not understand the business implications of the analysis).

This has several implications. Knowledge needs can be addressed through financial appreciation, application of techniques simulations etc. Equally, there are some "nostalgics" who view the microcomputer with fear and loathing (and must be motivated to move into the 1980s).

But, more problematic, is the fact that many have been conditioned in school to loath mathematics and so have a lack of basic numeracy skills. Yet, to benefit fully from microcomputers, this lack of numeracy and attitude must be overcome.

Any of these skills can be emphasised by adding supplementary activities. For instance, a formal business presentation can be added to a standard simulation.

Motivation Needs and Engagement

Most forms of participant centred and experiential learning tend to engender involvement and stimulate hard work. So, they are for used to:

- ◆ **Encourage Competition**
- ◆ **Break Down Inhibitions**
- ◆ **Involvement**
- ◆ **Engender Excitement**
- ◆ **Change Pace**
- ◆ **Emphasise Profit**
- ◆ **Result Focus**
- ◆ **Team Building**
- ◆ **Build Relationships**
- ◆ **Fulfil Adult Learning Needs**

Encourage Competition

It is reasonable to suggest that all team activity on management courses is competitive. For instance, once, against conventional wisdom, I set up teams for a case study so that two were male only and the third female. My deviousness was recognised but the competitive element (the female team would prove itself and the two male teams realised this) meant that all groups worked into the early hours - and the course was one of the best ever!

Break Down Inhibitions

At the start of a course, participants may be reticent. A simulation run at the start of a course overcomes this. Further, often learners have been *conditioned* to think that learning involves sitting in serried ranks listening to the *professor*. A business simulation ensures that they are willing to be *active learners*.

Involvement

The nature of simulations means that participants become very involved in the process. So, they tend to work through refreshment and meal breaks and often late into the night.

Comments from participants on a development centre when informed that coffee was available.

"Coffee breaks are for wimps"

Engender Excitement

The loud noise that often emanates from team rooms while the simulation is running illustrates the excitement generated by the simulation - especially when they receive results that shows a plan is coming together.

Change Pace

The active nature of simulations means that they provide a change of pace from more formal (lecture & discussion) sessions. On long courses, there is often an "energy gap" about two-thirds of the way through. Here simulations can be used to revitalise participants.

Emphasise Profit

Some business staff (such as engineers and scientists) can be more interested in perceived quality and technical complexity than in profit. Equally, some sales staff are more concerned with unit sales volume than profit. In both instances, a simulation can be used to build the awareness of the need for profits.

Result Focus

This parallels profit emphasis, but is a more general emphasis. Also, by emphasising the results of work rather than just the work leading towards them, it motivates "task oriented" managers.

Team Building

Often, organisations are geographically spread (examples are the sales force, the marketing departments of multinationals or management consultants). Running a simulation at a company conference or on a course can help with the team building process.

Build Relationships

Parallel to the team-building requirement there is the need to build relationships between individuals. For instance, taking part in an in-house or national competition provides an opportunity for managers from different functions to work together. In doing so, they can build a relationship that benefits them in their day to day work.

FULFIL ADULT LEARNING NEEDS

The sidebar lists key adult learning needs for managers (this list is based on the needs identified by Knowles (1987)). If the session provides these, managers are motivated. If not, the managers become dissatisfied (and voice this dissatisfaction). Simulations are particularly good at providing self-directed learning involving opportunities for varied practice that is task centred with feedback (2, 3, 4 and 7). If well tutored, the link between the session and learning needs is explicit and the process is well managed (1 & 6).

- Needs of Adult Learners -

1. **Want to know why they should learn something.**
2. **Want to be self-directed in their learning.**
3. **Learn best when presented with lots of opportunities for varied practice.**
4. **Have a task or problem centred approach to learning.**
5. **Are motivated to learn.**
6. **The process of learning is important.**
7. **Need feedback about learning.**

Assessment and Evaluation

The traditional academic examination is unlikely to be appropriate for practising managers. However, as managers take charge of their life-long learning needs, they need an activity that tests and challenges their knowledge and skills. Further, the tutor and course designer needs to assess the quality and appropriateness of the course. So the assessment dimension is important. This leads to assessment and evaluation of the learners and learning.

- Learner Assessment
 - ◆ **Self Assessment**
 - ◆ **Informal Assessment**
 - ◆ **Formal Assessment**
- Learning Evaluation
 - ◆ **The Course**
 - ◆ **Prior Learning**
 - ◆ **Delegate Needs**
 - ◆ **Remedial Needs**

Self Assessment

An aspect of continuing professional development and life-long learning is the need for managers to take active charge of their personal development. Although it is reasonable to suggest this has always been the case, in practice, many managers have relied on their manager or personnel department to "send them on courses". The understanding testing aspects of simulations coupled with the wide range of skills practised means that it is useful to encourage participants to use the session to assess their own development needs. (Self-assessment is independent of the tutor and management.)

Informal Assessment

The simulation provides an opportunity for the trainer to identify possible future development needs and, perhaps, informally discuss these with the participating managers.

Formal Assessment

Simulations provide a valuable assessment instrument for formal Assessment or Development Centres. Here, the teams and individuals are observed as they run the simulated business. (This topic is discussed in Chapter 9: Ways to use Business Simulations).

Evaluating the Course

At the end of the course, the tutor or course designer may wish to assess the strengths and weaknesses of the course and to see how individual sessions met the objectives. Customarily this is done with the course review form. However, using a simulation at the end of the course provides a cross check for this. (Commonly, when I was running a simulation at the end of a course, I found that I had to do a significant amount of coaching where previous sessions had not delivered.)

Evaluating Prior Learning

At the start of the course it is helpful if there is some way of assessing the starting knowledge (prior learning) of delegates. Customarily getting delegates to introduce themselves does this. However, this introduction reveals participants perceptions and not, necessarily the true position. A simulation at the start of the course can provide more objective indications of prior learning. (A good friend of mine was tasked with running what is possibly the *worst* course "*Advanced Financial Appreciation*". He was faced with three groups of delegates – those who understood *basic* finance, those who had attended a basic finance course years ago and forgotten and, finally, those who had an inflated sense of their financial knowledge. As a consequence, he ran a simulation at the start of

the course to *categorise* the learners and know those who needed coaching and those he could use as a resource.

Delegate Needs

At the start or during the course a simulation can be used to measure the gaps that exist between existing knowledge and requirements. At the start of the course, this allows a degree of tailoring to needs. At the end of the course, this assessment can help identify future training needs.

Remedial Needs

During the course the tutor needs to assess progress and the need for remedial coaching.

Assessment Policy

So, for an individual session, the course designer must decide whether there is an assessment need. If so, will this be done by the tutor (to decide learning needs or wants, the degree of learning that has occurred and what remedial or future learning is necessary). Or, will the assessment be done by the participants to decide their own, personal, development needs. If self-assessment by participants is required then they must be briefed on this and devices such as "learning diaries" are used.

Although, to some extent, all sessions must be assessed, it is sensible have this as a priority for just a few sessions. First, if participants feel they are being assessed, this may cause pressure and so affect learning. Second, the assessment process robs time from the learning time and so reduces learning.

Enhancing Learning

The third aspect of session planning is that of enhancing the learning process (cognitive development). Typically simulations are used to:

- ◆ **Integrate Knowledge**
- ◆ **Assimilate (Memorise)**
- ◆ **Test Understanding**
- ◆ **Revise, Review & Reinforce**
- ◆ **Link Theory with Practice**

they are

- ◆ **Participant Centred**

and provide

- ◆ **Active Learning**
- ◆ **Clinical Practice**

Integrate Knowledge

There are two aspects of knowledge integration - integration of the course sessions and integration with prior learning and experience.

Course Integration

Commonly, courses consist of separate sessions each covering different areas of management and taught by different subject experts.

- Thought -

Where a course involves several tutors, it may be useful for them to meet beforehand to inform each other about their sessions.

However, today's management requires a multidimensional or multifunctional, holistic view. So, a course session should be designed to integrate the whole. Often this is the final session.

Integration with Prior Knowledge

Pressure on managers means that management courses are short. This brevity means that courses are not and cannot be seen as stand alone entities. It is necessary to assume and draw upon prior learning and experience. Sessions need to take this into

account. Integration with prior learning has several implications. First, as described later, for knowledge to be usefully assimilated (memorised) it must be linked to existing knowledge. Second, calling on and recognising prior knowledge, is behaviourally rewarding for adults. Finally, you must consider the range and diversity of prior learning and experience.

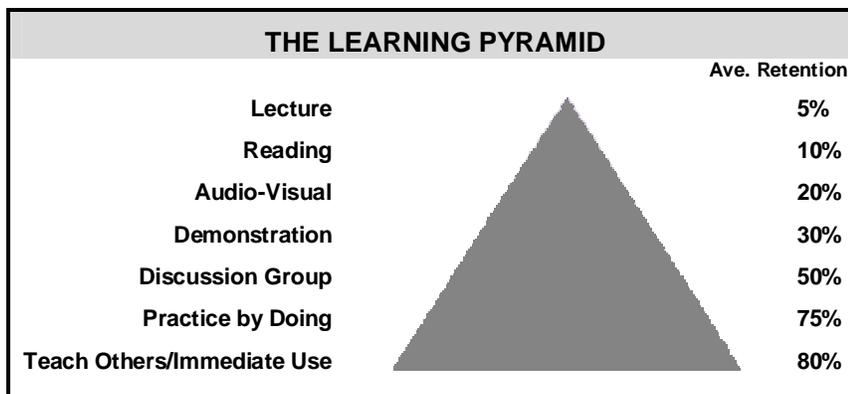
Memorable Assimilation

Part of memorising is integration with prior knowledge (see above) but, also, the learning context and process is important. Cognitive psychologists discuss this in terms of memory & attention; depth of processing and the way information is represented in memory.

Unlike lectures, where it is difficult to reflect and still listen to the lecturer, simulations provide opportunities for reflection with participants moving in and out of the discussion as required.

As discussed in the section on motivation, simulations are motivational events and participants are very involved in the process. This is because, usually, participants see simulations as competitive activities. This motivates them to discuss in depth and so ensures deep processing and therefore assimilation.

As shown in the "learning pyramid" different learning approaches have different retention rates with practice by doing (through simulation) delivering a seventy-five percent retention rate!



(The source of the learning pyramid is Motorola University: Creating Mindware for the 21st Century, *Corporate University Xchange* May/June 1996, Vol 2 No 3.)

Test Understanding

I sometimes feel that the very good presenter is worse for learning than the average one. With the first-class presentation it is possible to become mesmerised. So you receive and store information without thought and without considering the implications or linking the knowledge to existing schema.

As a result you may hear the words but not understand the subject. So, besides information dissemination, there is the need to test understanding. This is illustrated in the sidebar. This shows comments from managers learning about finance on a general management course. These illustrate how the simulation tested understanding of the earlier financial input. It is worth emphasising that finance was being taught by one of the best trainers at a leading management college. So, despite teaching excellence, the simulation was needed to complete the learning cycle.

- Testing Understanding -

"Good session, I feel that I'm beginning to get to grips with Finance"

"Best learning session to-date - no hiding place"

"Very useful in clarifying the relevance of financial ratios"

"An analysis of the use of ratios to measure financial performance - I even understood it!"

"Illustrates the wide importance of key ratios and great fun"

Revise, Review & Reinforce

This is at two levels: during the course and after it. During the course, where the simulation is the last session, it provides an opportunity to revisit earlier subject matter. (To an extent this paragraph is revisiting the sections on memorable assimilation and testing understanding!).

Besides the course ending use, there are other situations where simulations can be used to revise and review subject matter. These are at the start of the course and towards the middle. Use at the start provides an opportunity for the tutor to assess needs and prior knowledge. Towards the middle provides the opportunity to judge what needs to be taught and what remedial work is necessary.

On the course, this "revisiting" is while the tutor is available to coach and correct. After the course, you often rely on the job work to revise and review but this is not sufficient. Depending on the immediacy of this practice there is a risk of forgetting between the course and use on the job.

<u>Knowledge and Business Need</u>	<u>Frequency Of Use</u>	<u>Importance Of Work</u>	<u>Breadth of Knowledge</u>
OPERATIONAL	continuous	minor	narrow
TACTICAL	infrequent	needed	wide
STRATEGIC	very rare	vital	very wide

At one extreme, operational work is usually done continuously. Thus knowledge is constantly reinforced. But, the knowledge involved is narrow and unimportant. At the other extreme, strategic work is done rarely, requires a wide range of knowledge and involves unique, creative solutions. These are solutions that are vital to the business. Yet, this is just the situation where you might have "forgotten" some necessary knowledge.

As illustrated in the sidebar, it is sensible to plan development sessions where the purpose is to revise and refresh past learning. This maintains knowledge, protects investment in past training and ensures participants are ready for unexpected problems.

- Learning Half-Life -

Besides being concerned with life-long learning, we should be concerned with life-long knowing. The implication is that we must design sessions that extend our learning half-life.

Sessions that provide a mental *workout* of our minds. Sessions where simulations or case-studies are used as stand-alone events

Link Theory with Practice

It is a platitude to suggest that management is to do with doing rather than just knowing. Never the less this is true. Adult learners are concerned with how the learning affects

their work. This means the theoretical content must be complemented by sessions where participants test their skills.

Also, the real world is not as tidy or as unambiguous as is often suggested by management theory. Experiential exercises allow exploration of "open ended questions" rather than "closed ones".

Participant Centred

This allows learning to be "tailored" towards individual needs. Also, by recognising the importance of the "student" these sessions reinforce the manager's sense of self and his or her need for self directed learning. Although, economics limit the degree of individualisation, activities such as discussions, case studies and simulations help.

However, the trainer should realise that participant centred learning involves a loss of control. The session may move into unexpected areas where the trainer has little or no knowledge. (Although this may be mitigated by other participants drawing on their own knowledge and experience.) Second, especially with discussions, the session may lose structure and direction. However, for simulations, the decision-making cycle and results from the simulation provide structure and so minimise this loss of control. Third, the session may start to explore issues that are only of interest of a minority. Again, this is a problem of large discussion groups. Where, as with case studies and simulations, individual team sizes are four or five this is not a problem.

Although participant-centred learning motivates most adult learners some are not. This is especially true if they have been "conditioned" by school, college or their culture to place the teacher on a pedestal as a "fount of wisdom"!

Active Learning

Is a requirement since managers are not passive, reactive creatures in the way college students are expected or conditioned to be. The daily work pattern of managers is such that they do not spend hours at their desk working on a single topic. So, for knowledge building, some lectures are necessary. However, the course must have a balance between active and passive sessions. Since, simulations are probably the most active of all sessions, they can be used to "revitalise" the group. Also, they are useful for the "difficult spots" (after lunch or dinner or at weekends). The down side is that too many or too long active learning sessions can be emotionally and physically exhausting. (For instance, running a simulation directly after a weekend outdoor team building exercise is not judicious!)

Clinical Practice

The areas practised were described in the earlier section. Here, in terms of leaning process, clinical practice allows skills to be practised in a "safe" environment (see side bar) and where the practice is coached and mediated by the tutor. The controlled environment ensures learning reinforces good rather than bad practice.

- Thought -

When your arse is up to alligators you may forget that your purpose was to drain the swamp.

In the real world this is a problem. But in the world of simulation your only worry is when the trainer releases the piranha.