



# The Power of Simulation-Based Learning

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## 'Are we really going to be able to get rid of the backlog?'

The participants, all employees of a government department who I had inducted as 'employees' of a mock bank, were a trifle nervous. We were in a small training room in the Sydney CBD.

They had had several runs in previous sessions simulating a mortgage processing facility, and had witnessed the toll a bad process inflicted on customers and staff alike: work piled up and only moved through the system in fits and starts. And the people trying to do the processing were enmeshed in overwork, confusion and frustration; or else trying to occupy themselves chatting or joking because they were underutilised.

We'd measured how many 'applications' our simulated mortgage facility could process, and the average time to process an application. The figures weren't pretty. Even before we'd started to improve this broken system though, there'd been some insight into what generates real, durable teamwork and morale.

Nonetheless, now was crunch time. I'd outlined key concepts and tools in performance improvement (such as unbundling complex tasks, triaging, and reallocating resources and functions) and it was time to start putting them into action in our 'bank'.

I appointed one of the participants General Manager and gave the group 15 minutes to brainstorm and decide which tools they were going to use.

They then had a chance to pilot their solutions. They asked for more time to extend the pilot, which I granted. Then another tweak (for further staff reallocation) and a request for another pilot was granted. After this, it was time to lock in the improvements and run the proper simulation for the full amount of time (five minutes).

I started the timer, the 'Customer Service' unit received their first batch of fresh 'applications' and the group went to work. There was only the sound of papers being written on and passed; no confused conversations ('I thought you were doing that?') or side chatter. Everyone was focused and concentrating.

It was like that for the full five minutes.

Once I stopped the timer we counted how many applications had been processed and calculated the basic diagnostics (completion rate, turnaround time, work in process etc.).

There was a distinct gasp when I gave the participants the figures: the team had *quadrupled* their output without any new or extra resources.

'How do you feel?' I asked them.

'Exhilarated!' replied one participant.

'Now...' I joked with him, 'haven't I told you before that you get marks taken off for being facetious...'

'I wasn't!' he protested. 'I was serious!'

### Simulations: immersive learning-by-doing

This is how a simulation I developed played out when I facilitated it in June 2013.

I'm a big fan of simulations because they are powerful tools for learning

and performance improvement. Rather than simply communicating concepts in a lecture style format, simulations allow participants to immerse themselves in a learning-by-doing experience that closely replicates reality.

Simulations can encompass board-based games, role plays, computer based activities (single or multi-player) or full-scale experiences with thousands of participants that stretch over several weeks. Whatever their shape, simulations bring ideas to life that would otherwise remain dry and abstract concepts.

Here are a number of powerful applications of simulations, and what was gained from their use.

#### 1. Practicing performance: simulating process improvements

The session recounted above is an example of a process improvement simulation, designed to give participants a more complete grasp of how processes work and what to do to enhance them.

Rather than simply communicating concepts in a lecture style format, simulations allow participants to immerse themselves in a learning-by-doing experience that closely replicates reality.

The approach to performance improvement known as Lean Six Sigma often uses simulations to show how processes can be improved. Lean Six Sigma draws together the defect reduction program developed by Motorola titled Six Sigma (which is a successor to the quality movement of the 1980s) and the emphasis on enhancing flow and minimising waste developed by Toyota known as the Toyota Way, and referred to by many simply as Lean.

These efforts originated in the manufacturing environment but are also applicable to services, with notable efforts in recent times to apply Lean to healthcare. Simulations are used for training, and also to pilot or test proposed process improvements.

### What was gained?

Being part of the simulated bank taught participants how to reorganise a service to eliminate bottlenecks and blockages and facilitate greater ‘throughput’, with massive improvements in turnaround time and the number of applications processed.

It also showed how performance metrics and KPIs can be vital indicators of a real, organic system.

Process improvement simulations are a challenging, visceral and effective learning experience.

## 2. Reality from role plays

Role plays are a staple of the simulation genre, in which participants act out a part in a scenario with other actors. Typically participants pair off and each take a role, after which they swap roles.

The process improvement simulation described earlier was followed up with a ‘management meeting’ role play in which the participants drew on the simulation data to describe and explain the mortgage facility results to the ‘CEO’ (a role I played). They also outlined their improvement strategies, where problems were located, and where the potential for further improvement lay.

Role plays are effective tools for training in leadership, management, performance appraisal and feedback, and public speaking. They are also key element in many sales training programs.

### What was gained?

Role plays enable participants to practice new behaviours, try out different interpersonal techniques, learn what kind of responses they can elicit, and to think on their feet. They are immersive, open-ended, and occur in real-time.

## 3. Pilots in emergency situations: flight simulators

High-fidelity flight simulators – the most easily recognised form of simulation – are used for training flight crews, where they face instrument malfunctions and other unexpected events. Similar

types of simulators are used as learning devices in other forms of transport notably in the rail industry where train drivers learn how to operate new types of rolling stock.

### What was gained?

For airlines, simulations provide skills in how to handle emergencies. Interestingly, crew members in these simulated emergency situations are required to coordinate their actions, so there is implicit team-building that occurs. Simulations teach train drivers how to operate new models of train and utilise extra features, compressing the learning curve and reducing driver error.

## 4. Running a theme park: computer games

Another technology-based simulation for learning: computer games have some powerful learning applications. Prominent among these are the Tycoon series, which include *Monopoly Tycoon*, *Railroad Tycoon* and *RollerCoaster Tycoon*, and the Sim series including *SimCity* and *SimFarm*. In these games participants learn how to set prices, allocate funds, put on or lay off staff, construct buildings and bid for assets. They can be played alone or with others. At their best, computer games combine skills acquisition with fun – a potent combination contributing to the effectiveness of simulation.

### What was gained?

My son, now 16, recently played *RollerCoaster Tycoon* and learnt valuable information about financing in doing so. He understood the balance that has to be struck between the extra income from new buildings that are funded by borrowings, and the interest cost from those borrowings – a valuable lesson to learn at any age, but especially in your teens.

## 5. Mock markets: simulated competition

A common form of simulation-based learning used in some corporate and competitively exposed public sector organisations is where participants form teams and, in effect, run their own business. They maintain their own set of accounts, price products, develop marketing strategies and compete against other teams. Successive rounds of the game are played and the business results (revenue, profits etc.) are totalled up at the end of each round. These games can either be paper/board-based, or electronic.

### What was gained?

These competitive simulations teach the fundamentals of how markets work in a participatory way that no economics lecture could ever do. I participated in a couple of these a few years ago, one of which simulated the bidding process of the national electricity market. Participants come away understanding how prices are formed, and that one parties’ actions influence (without completely determining) the results and actions of competing units.

Simulations are used for training, and also to pilot or test proposed process improvements.

### Getting the most out of simulations

The breadth, flexibility, and immersive nature of simulations make them a powerful tool for organisational learning. They are also in my view a massively underutilised resource for management.

Simulations help overcome the chief obstacle to the effectiveness of traditional classroom-based training: that the context in which the training occurs is completely separate from the day-to-day work context, and therefore the lessons from the training are lost en route to the workplace.

This raises two imperatives which have to be addressed if simulations are to yield the greatest value.

Firstly, because of their game-like orientation it's incumbent on the instructor/facilitator to ensure that the learning goals of a simulation are clearly articulated and understood by participants. Otherwise the simulation may be an enjoyable – but not necessarily educational – experience. In the case of the simulation described earlier the objectives were for participants to learn how to measure, report and improve the performance of a transactional process.

Secondly, because of their immersive and experiential nature, the learning from a simulation needs to be drawn out after the event, so a properly facilitated de-brief is a critical part of the learning process.

That said, simulations serve to compress and accelerate learning experiences for staff at a fraction of the cost and risk. And they do so in a safe and fun environment.

The employees of my mock bank would certainly agree. ■

### References

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