

# From the Ivory Tower to the Shop Floor: The Simulation Option

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**This article illustrates how computer based instructional simulations can disseminate knowledge of basic management practices to SMEs.**

Academic elitism is often caricatured as professors in ivory towers, detached from the everyday challenges faced by managers running businesses. Further, there has been constant criticism that advances in academic research do not reach the MBA classroom in a relevant and timely manner so that they can be applied by managers, be it on the shop floor, the boardroom, or the marketplace.

## The Ivory Tower-Shop Floor Gap

To some extent, the gap between the so-called ivory tower and the shop floor has been bridged in large companies by consultants who come armed with degrees from prestigious business schools and with their own in-house research and white papers. However, such professional help falls outside the affordable reach of the vast majority of SMEs (small and medium enterprises) in India. But there is little doubt that thousands of small businesses will benefit from the knowledge and application of tried and tested management practices. A recent World Bank-Stanford University study (Bloom et al, 2011) used a controlled

field experiment among Mumbai's textile firms and showed that basic practices in inventory management, quality control, operations, human resources, and sales (provided to the textile firms by management consultants in the experiment) translated into large returns in productivity and profits, even within a few months of implementation. This study reinforces the need, and the value in training managers of SMEs in basic management methods, let alone cutting-edge tools and techniques.

This issue is critical given that SMEs play a pivotal role in the India's economic growth. Today, SMEs contribute 45% of industrial output and 40% of exports; their share of India's GDP in 2009 was 17% and it is expected to touch 22% by 2012. However, offering specialised management training programmes for SME managers through business schools or other organisations is unlikely to work, for two reasons: (1) most managers in SMEs don't have the resources to attend these programmes, and (2) there is a dearth of teachers trained in basic (and advanced) management practices to provide such programmes in the numbers needed to make any substantial difference to the SME community.

One possible option to address this pressing need is the use of computer based instructional simulations to disseminate knowledge of basic management practices to SMEs. The simulation approach provides the opportunity for "active learning" by managers, given the high level of interactivity possible in computer simulations. Further, such an approach

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has huge efficiencies in cost, space, and time due to non-requirement of teacher recruitment, teacher training, classrooms, and textbook publishing. Equally important, this approach will be in tune with the increasing affordability and use of computers and technology in SMEs, and the continuing penetration of broadband in India.

### The Simulation Option

Computer based instructional simulation can be a powerful teaching, and learning mechanism. Traditionally, simulations have been used in the sciences to help the learner experientially understand concepts rather than simply solving mathematical equations. Variables can be changed and responses

that learning does not take place.

### Simulations and Instructional Support

The question then, is not the value of simulations per se, but rather, what conditions make them most effective for management learning. There is general consensus among researchers that the degree to which learning takes place through any pedagogy – be it simulations or otherwise – is largely dependent on what the learner brings to the table. There is evidence that learners use their current knowledge in learning; that is, what they know at any given time affects how they interpret new knowledge. Given our focus on SMEs and the tremendous diversity of managers expected in the SME community, the type

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received immediately to make clear the cause-effect relationships. Today simulations have become increasingly popular in teaching management concepts in MBA classrooms. The appeal of simulations is derived from the fact that they can go beyond the reach of lectures, and even case studies. They thrust students into a business environment where they are forced to make tough decisions and see the impact of their decisions immediately. The Chinese adage comes to mind: ‘When I hear, I forget. When I see, I remember. When I do, I understand.’

The specific pedagogical value of simulations are many: (a) the immersive nature of simulations, where the manager is thrown into a real life, real-world scenario, (b) the advantage of time compression, whereby multiple decisions can be made in hours or days, whereas in the real world it would have entailed weeks or months, and (c) the value of active learning, with the power to explore and experiment, and experience the cause and effect of decisions made. In fact, the last point is often used to make the claim that simulations can trump real life experiences in enabling efficient learning. As described by D Bertsche et al. (1996), “the school of hard knocks doesn’t teach you much if cause and effect are blurred.” Many a time, in real business decision making, the lapsed time between the decision and its consequence can obscure the cause-effect link, thus increasing the likelihood

of instructional support used in conjunction with the simulations will be important.

Four types of instructional support are commonly seen in simulations: (1) directed support, where the learner is provided specific assignments to complete, (2) guided support, where the learner is given some direction as to what should be explored and examined, such as progressing from one level of analysis to another, (3) questioning support, where questions are asked of the learner, helping drive exploring activity, and (4) classroom/teacher assistance, where the learner has face to face meetings with an instructor, pre and post simulation activity. The key concern: if the learner is given too little instructional support, the simulation environment may become too open for exploration and experimentation, and specific learning goals may not be achieved; however, too much instructional support detracts from the advantages of active and exploratory learning. The right type of instructional support is needed, based on learner characteristics and readiness. Ideally, for the SME community, we should have a process of testing managers to help identify their level of readiness, to help match the appropriate level of instructional support best suited for an individual manager.



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## The Way Forward

The Government of India recently embarked on two initiatives to help disseminate knowledge in the country: (a) The National Programme on Technology Enhanced Learning, and (b) Virtual Labs. The former (<http://www.nptel.iitm.ac.in/>) is focused on disseminating knowledge in engineering and the sciences through recorded video lectures, and is a collaborative effort between the Indian Institutes of Technology, selected engineering colleges, and the Indian Institute of Science, Bangalore. Virtual Labs (<http://www.vlab.co.in/>) has been set up to design web enabled experiments in science and technology that can be used for remote learning, anywhere, anytime. Both these are laudable efforts, and can be the foundation that leads to web-based instructional computer simulations focused on management practices, targeted to the SME community. As the World Bank-Stanford University study (described earlier) shows, even the most basic methods are lacking in the SME sector and as such, Web-based

simulations can start with a focus on basic practices and concepts. And as seen in that study, we are likely to see quick returns in productivity and profitability in the SME sector, if the initiative is implemented effectively.

## Conclusion

Computer based instructional simulations may not be a panacea to the challenge of disseminating management knowledge to small businesses; however, it can be a start to address what seems to be a lack of basic management practices among SMEs in India. If implemented effectively, this approach has various advantages including “active learning” that is more lasting and effective, as well as tremendous efficiencies in cost, space, and time. Over time this method can be used to move from a focus on basic concepts to the latest advances in management research; this will be a big step in bringing cutting-edge thinking to the SME sector, and help bridge the gap between the so-called ivory tower and the shop floor.