

Designing the
THINKER



of the FUTURE

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Yesterday's approaches to problem solving won't cut it in tomorrow's complex environment. The high-value decision maker of the future will be characterized by a capacity for Integrative Thinking™.

Current approaches to business education are based on a model that has become increasingly incapable of bridging the gap between the problem solving means of the past and the complex problems of the immediate future. A new model is needed – one that turns its back on formulaic approaches to solving problems and acknowledges the vital role of integration in modern business, stressing the virtues of 'nimble mindedness', 'big mindedness' and 'tough mindedness' over the seductive trap of narrow perfectionism.

The high-value decision maker of the future will be a manager of complex interactions who faces a multitude of inputs on a daily basis – different value systems, ways of knowing, ways of acting and relating, ways of managing, and ways of choosing between them. In the midst of this cacophony, decision makers will be called upon to internalize the clash among multiple models of the world and resolve it productively.

The skills required to accomplish this are 'tacit', in that they are not explicit in the same way that the skills of a computer programmer, a production line manager or a chief development engineer are. They cannot be represented by adherence to a set of rules that can be put together into algorithms that automatically turn certain inputs

into certain outputs. Unlike many skills of the industrial age, they cannot be automated.

There are two ways to interpret the 'tacit-ness' of these skills. The first is to resign ourselves to the notion that they can never be made explicit, and can therefore never be developed or selected for. An alternative approach – the one we are pursuing at the Rotman School – is to attempt to make progress on identifying and developing the tacit skills that make a difference to the solution of 'wicked problems' – multi-layered problems with no definitive formulation or solution.

The Role of Integration

Let us consider a typical example of the high-value decision maker in action: a general manager at a telecommunications equipment firm attempting to bring to market a new cellular voice/database station. The manager must motivate, monitor, coordinate and negotiate with experts with varied disciplinary backgrounds, who generate arguments patterned on the underlying logics of different basic sciences, each based not only on a different vocabulary, but also on different standards of argumentation. An argument about 'the optimality of a queuing process', for example, will have different standards than an



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argument about 'market timing', and will rely on a different combination of analytical and empirical reasoning.

Moreover, different domains of expertise are embedded in different modes of inference and different logics. Through the medium of our manager, the logic used by the system architect must be brought into dialogue with the languages of the programmer and the network theorist; and the logics of the marketer and the product line manager must be brought into dialogue with the logic of the hardware engineer.

Successful integration is essential to our manager, both for building credibility and legitimacy around her arguments and actions, and also for successfully monitoring and sanctioning the tasks and auditing the arguments of the contributors. The value of this decision maker to the organization increases exponentially with her ability to successfully resolve the fundamental model clashes, tensions, and incongruencies that emerge among contributors.

Two features of the integrative function are apparent from this discussion. First, integration is inevitable. Whether it actively sets out to or not, every organization as a whole does achieve some level of integration among different knowledge bases, ways of acting, knowing, communicating,

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representing, and so forth, in the sense that any global outcome brings together the chain of activities of the firm. Bankruptcy, for instance, is an integrative outcome: integration of all of the causal chains making up the organization takes place – even though nobody sets out to make it happen. The question that we are concerned with surrounds the *quality* of the integration: a given manager becomes a high-value decision maker by making the reality of integration happen more successfully.

Second, the integration function cannot be outsourced, because the result of outsourcing it would be a loss of the full benefit associated with it. Because much of the integration function occurs in the tacit-skill domain, it would have to be somehow duplicated inside the organization after it has been carried out by an external agent – precisely what integration is not amenable to.

A Sketch of Integrative Thinking

Integrative Thinking can be defined as “the ability to think and act responsibly and responsively in the face of multiple and possibly-conflicting models of oneself, others, and the world.” The successful integrative thinker creates value through the creative resolution of tensions between such models, interacting with self, others and the world successfully in predicaments that are unstructured, ambiguous and complex, calling for the integration of disparate knowledge structures and behavioural patterns into a single action plan.

At the opposite end of the spectrum is the cognitive narrowing of managerial predicaments along ‘disciplinary’ lines of thought via the use of pre-existing models, which epitomizes a patently non-integrative way of being. ‘Narrow perfectionism’ entails narrowing the definition of the task at hand to the point that ‘perfection’ is guaranteed; cause-and-effect relationships are simplified to the point that actions produce a guaranteed result. For instance, rather than a clerk defining the desired outcome as ‘a satisfied customer’, she defines the outcome as ‘a customer interaction in which each step of the prescribed procedure was dutifully followed’. If customers disappear because of indifferent service and the store goes out of business, in her mind, it isn’t

because of her error, but rather, exogenous factors beyond her control.

The integrative ‘way of being’ is characterized by the successful resolution of tensions between the need, on the one hand, to learn and adapt and, on the other hand, to act decisively and purposefully. A working model for an integrative way of being is one predicated on the ability to consider more salient variables in a decision process; the ability to internalize and conceptualize non-linearly-structured relationships between the salient variables; the ability to maintain a view of the whole problem while working on the individual parts; and the ability to harmonize and synthesize alternative standpoints rather than choose between them, all the while retaining the ability to act decisively and punctually.

Following are some real-life strategic resolutions that exemplify the integrative skill:

- **Isadore Sharp** created the **Four Seasons Hotels and Resorts** experience in response to the seemingly irreconcilable tension between the need to provide the intimacy and comfort of a small motel with the range of amenities and services and attending economies of scale of a large hotel by designing, rapidly prototyping and perfecting the medium-sized, service-oriented luxury hotel with intimacy and amenities funded by a massive end-customer price premium.
- **Herb Kelleher** made **Southwest Airlines** into the short-haul, point-to-point frequent departure airline of choice for leisure and business travelers in response to an articulated aim to simultaneously become both the lowest-cost and highest-profit airline in North America and the highest employee-satisfaction airline in North America, a vision that incorporates multiple goals that one usually thinks of necessarily trading off against one another.
- **Jack Welch** resolved the tension between embedding stretch goals in **General Electric** and keeping budgeting and planning meetings efficient and productive by de-linking discussions of executives’ hopes and dreams from conversations about budget.
- **Richard Currie** created the President’s Choice high-end private label products

for **Loblaws** as a way of resolving the conflict between the goals of providing both low prices for consumers and high profit margins for Loblaws.

- **Moses Znaimer** made **Citytv** into the ‘quintessentially local’ television station – a globally-licensed concept successfully replicated in 22 other countries, as a way of providing a strategy that is responsive to both the globalization of the media business and the yearning of viewers for local feel and content.

The New Managerial Virtues

If it is the case that Integrative Thinking is an essential component of the mix of tacit skills that will drive value creation in the 21st century, then it makes sense to ask, ‘what are the new managerial virtues that we should aim to cultivate and develop, and, how are we currently equipped to do so?’ We believe that there are three such virtues.

The productive resolution of seemingly intractable tensions must be rooted in the recognition of different ways of thinking and acting. The ‘local television station’ that Znaimer envisioned is a ‘micro-world’ – a community of practice and discourse – that is radically and fundamentally different from the cosmopolitan station – another such micro-world. They entail different patterns of interaction, different capital budgeting constraints, different organizational rule sets, and different inter-organizational network structures. Znaimer therefore had to possess the *nimble-mindedness* to understand different micro-worlds in their ‘radical other-ness’, and to mentally ‘walk around’ in them in order to internalize just how deep the tension between them really is.

Once the tension between micro worlds has been understood, the integrator requires the *big-mindedness* to simultaneously behold the competing models, while retaining the ability to function. Her mind must contain the radical other-ness of several different possible worlds that are in tension with one another, without falling into paralysis.

Subsequently turning the new insight into action – embodying the idea, producing the revolutionary behaviour – requires *tough-mindedness* – the willingness of the high-value decision maker to ‘try out

behaviour’ and allow her ideas to die in her stead if they are found to be wanting.

The Outdated Model: Business School 1.0

While the skills we describe here are not currently being widely trained or cultivated, we believe that business academics are equipped to develop such virtues in MBA students. The tools are already in place; but business scholarship and teaching must be understood in a new light in order to bring about such change.

A sketch of ‘Business School 1.0’ – which originated with the inception of formal business education in the early 20th century – reveals an organization of teaching and research that mimics the functional structure of the business organization. There are ‘problems of production’, ‘prob-

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lems of accounting’, and ‘problems of finance’ to be handled by methods specific to each individual problem area.

Within this model, business academics research in narrow fields and create models for understanding their particular area. In general, this involves research in one field (often a narrowly-defined sub-field) and no attempt to link their models with models outside of the field. Faculty then teach their models to students, who are predisposed to embrace the narrow perspective they are taught. Each silo conjointly develops ‘rules of thumb’ for adequate contributions to classroom and scholarly discussions and ‘laws of business’ that are sometimes used to buttress the rules of thumb in question.

True tension has little opportunity to flourish in this setting. In particular, there is no room for the simultaneous understanding of multiple conflicting cognitive models or images of the organization, the manager, or society at large; tensions among alternative ways of creating knowledge, validating belief or auditing theoretical claims; or the deployment of multiple logics and modes of reasoning. These missing elements are

the core characteristics of ‘model clash’ – the very clash that is so prevalent in the business world, where predicaments do not come packaged as specialized problem statements, and it is up to the high-value decision maker to choose between radically different approaches.

A New Way to Teach

There are encouraging signs in the world of modern business education – ‘Business School 2.0’ – that, together, amount to the seeds of a new way of teaching and researching. The traditional silos are now buttressed by basic social sciences such as economics, psychology and sociology, creating a foundation for carrying out dialogues that transcend the boundaries of narrowly-defined disciplines.

These dialogues, and the research that they are generating, have brought into sharp relief the depth and quality of the tensions between alternative models of humans and organizations, and as a result, a ‘fabric’ for training integrative thinkers exists. New disciplines such as behavioural finance, behavioural economics, and even ‘organizational neuro-psycho-socio-economics’ are now taking root in business schools, a hopeful sign that the inner workings of the mind are now being considered in a business context.

We are faced, then, with a significant opportunity for momentous change in the MBA that makes use of a lot of good work and resources currently in the toolbox of business schools:

1. We can exploit the increased pluralism and widening dialogue that has emerged around the business school to design educational experiences that develop big and nimble minds, used to seeing situations through multiple lenses. By exposing students to the fundamental tensions that arise in attempts to explain, predict, shape or justify human behav-

our, the rich background of situational detail that is kept hidden by traditional approaches is freed up, resulting in an ‘augmentation’ of the mind that increases the competence of the decision maker to deal with radical conflict.

2. We can harness the new emphasis on the use of knowledge as a ‘design tool’ to create experiences that allow the ‘thinkers of the future’ room to experiment with ideas in action – to ‘live it’, imprinting on them the mental habits of the tireless designer of experiments for answering questions about human behaviour: the tricks that get her to produce the right effects; the obsessiveness over the ‘demand characteristic’ of the experimental design; and the recklessness of the questioning of the original insight. Rather than conveying ‘strategic frameworks’, we can teach a basic repertoire of skills that can be deployed to create new models for new situations.

3. We can develop tough-mindedness by fostering the ‘falsificationist’ approach of scientific inquiry – whereby individuals design tests of the effectiveness of their strategies aimed at disconfirming or falsifying, rather than confirming them. This will help to cultivate an awareness of the fallibility of human enterprise, a willingness to walk on the ‘uncomfortable side’, and occasionally, to let go of our cherished ideas in the pursuit of new, more powerful models.

Teaching Tacit Skills

An approach that holds promise for the development of the skills we describe is the ‘practicum’. The format of a practicum is patterned on a combination of the musical ‘master class’ and the psychotherapeutic



training session. In the former, the student attempts to come to a better, deeper understanding of the score and of her own performative capabilities with regards to the score. The purpose of the instructor is to guide the process of forming and shaping this understanding, offering suggestions for improvement and criticisms, but leaving ultimate decision rights firmly in the hands of the student. Similarly, the psychotherapeutic training session allows the trainee the latitude to experiment with different modes of being relative to a situation in which she has a complex goal, and gives her the benefit of feedback about the products, processes and procedures that she designs and enacts.

At the Rotman School, we have put this thinking into action with the introduction of the Integrative Thinking Practicum, a program comprised of three modules and designed to expose students to new knowledge and provide them the opportunity to choose how to practice with and use it. Piloted as an elective course for first-year students in 2004-05 and 2005-06, it has become part of the required first-year curriculum for the 2006-07 academic year.

The first module aims to teach students to become creators and developers of models of human and organizational behaviour, to encourage model making and model shaping, rather than 'model taking'. Students are introduced to a basic repertoire of cognitive tools that can be deployed to build detailed models of actual human and social processes. They are taught to view model building as a way of (a) solving problems that do not come pre-packaged in a disciplinary language and (b) as a way of understanding others' representations of the problem at hand. This module also challenges students to conceptualize the models that are already embedded in the way they speak and think, and to 're-format' them for greater efficacy.

The second module attempts to develop experimentalists and falsificationists. Students are encouraged to see their world as an 'experimental playground' – as a sequence of experiments designed to test their hypotheses, designed explicitly to put those hypotheses in danger. Secondly, this module helps students understand the

counter-productive justificationist approach to hypothesis-testing that seeks confirming data and avoids seeing or considering disconfirming data. Instead, they are given the opportunity to practice falsificationist approaches whereby they 'stress-test' their beliefs by seeking out disconfirming data that may provide insight into how to improve their models and beliefs.

The third module aims to stimulate and develop the design capability of the 'social engineer' in the trainee, by getting students

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to reverse-engineer and re-engineer their own behaviour according to their aims. The basis of this module is close self-observation and analysis in controlled settings, followed by opportunities to take on new ways of interacting that are guided by a higher-level goal. Defensive interpersonal communication strategies, for instance, become subjects for behavioural re-engineering.

At its core, the Integrative Thinking Practicum seeks to build sound 'modeling engines' in the minds of students, equipping them with the mental tools required to build models that capture the complicated, multifaceted and multidirectional causal relationships between the many salient variables inherent in modern business problems. In addition, it employs basic models from the social sciences as 'engineering tools' aimed at designing more successful behaviours and lenses for re-formatting and re-engineering the participant's own behaviour.


In Closing

We currently face a disruptive opportunity in the market for managers: the growing demand for high-value decision makers who can successfully manage interactions across multiple conceptual and behavioural domains.

The goal of attempting to decipher and teach the new skills described here is to bridge the 'ingenuity gap' identified by some as the real limit to human development: the negative differential between the supply and demand of ideas that solve the

social, economic, technical, and moral problems that we, collectively, have created. We believe that the answer to the ingenuity gap may be that it is not a quantitative, but a qualitative one: not a 'know-what' gap in numbers of ideas or other purely cognitive objects, but rather a gap in 'know how to' – in the cognitive skills required to bridge between fact and value, thinking and action, different modes of thinking; different logics; and different forms of life.

Integrative Thinking stands not as an enemy to the disciplines, on whose shoulders it can be seen to squarely rest, but rather as a constructive challenge to produce more adaptive-reasoning patterns, more valuable instruments of prediction, and a more inclusive approach to inter-disciplinary dialogue. We believe that the ability to control cognitive processes can be developed through targeted interventions and training programs, and that Integrative Thinking is an essential component of the mix of tacit skills that will drive value creation in the 21st century.

Designing and educating the thinker of the future requires business educators to become 'intellectual entrepreneurs', experimenting with the educational experience itself to develop a new way to think, leaving behind the outdated model that has stultified business education for some time. And even though the work ahead for the prospecting of Integrative Thinking is strenuous, there is little doubt that it is worth undertaking. For who else will solve the problems of the future for us? 

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