SCHOOLING FOR TOMORROW

MAIN REPORT FROM PHASE 2 ON CHALLENGES AND APPROACHES TO FUTURES THINKING IN EDUCATION [not publication title]

This draft report incorporates key papers from the Toronto Forum, other futures thinking analyses, and reports from each of the 'inner-core' systems from Phase 2 of the project.

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Several chapters have yet to be edited into final form and this remains a working draft only. It will be finalised after this meeting for publication later in 2005.

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PART ONE

FUTURES THINKING INTO EDUCATIONAL REFORM - CHALLENGES AND METHODS

CHAPTER 1
EDUCATION IN THE INFORMATION AGE: SCENARIOS, EQUITY AND EQUALITY
BY
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In this chapter, I address the application of scenario planning to the future of education. The first part is about method. The longer second part of the paper fills in some content. The brief first part talks about different uses of scenarios, while the second illustrates some of the methodological points by offering an example of scenaric thinking specifically directed to one of the main preoccupations of the OECD/CERI scenarios: The promise of the information age and the tools we'll need to make good on that promise.

1.1.   Implementing Scenario Planning

At the meeting in Toronto, several of the teams from different countries reported similar experiences in trying to use the scenarios that had been prepared by OECD/CERI. While almost all were enthusiastic about the use of scenarios in general, and quite grateful for the hard work, solid research, and creative insight that informed the OECD/CERI scenarios ... each team found it necessary to customize the scenarios in some way in order to get buy in from their own local constituencies. This is a common problem. At Global Business Network we have a saying: *Scenarios are a little like sex—talking about other people's is never as interesting as your own.*

In propagating the use of scenarios we face a dilemma: If you supply ready-made scenarios, buy in and ownership can pose a problem. But if you expect each nation, each district, each school site to create its own customized scenarios, you may lack the resources to provide skilled facilitation, research, and the time necessary to do the job right. There is a way through this dilemma. Very briefly, the solution is to provide a scenario starter kit, very much in keeping with the "toolbox" idea that has been promoted by OECD/CERI. The question is just how much or how little to put in the toolbox. To answer this question, I would like to frame my remarks in terms of three different uses of scenarios:

- To provoke strategic conversation

- To stimulate genuinely new, visionary thinking

- As a motivator for getting unstuck

Scenarios as tools to provoke strategic conversation

One of the main benefits of scenarios is their capacity to engage participants in a process of civil conversation about the future of education. A set of alternative scenarios provides a very broad tent under which people with widely differing, and often passionately held, views can speak with one another about their children's future. Because scenarios are "just stories," and not yet plans cast in concrete, they can be entertained and discussed in a realm well short of dedicated commitment. Because scenarios are divergent, because they do not, at first, force convergence on consensus, they allow widely different views go gain a respectful hearing. For this reason, they are good tools for engaging an entire community or an entire nation. Scenario planning is a safe game for consenting adults where you don't get blood on the walls.

This positive feature of scenario planning has its downside for educators, however. Where business people tend to be action oriented, educators tend to be talk oriented. When conducting scenario planning in a business context, it is often difficult to get entrepreneurial managers to have the patience needed to develop a set of scenarios about different possible environments without leaping ahead toward actions to be taken this coming Monday. Business people don't want to talk about what their world may do to them; they want to talk about what they can do to their world. They don't want to take the kind of "outside-in" perspective characteristic of scenario planning; they want to take the kind of "inside-out" perspective—the activist perspective characteristic of entrepreneurs.

Having worked both sides of the street—in education policy and in business—I'm here to suggest that scenario planners in education need to be cognizant of these tendencies. It's important to be aware of educators' preference for talk over action. Faced with strategic choices, educators are inclined to ask for further research and more deliberation where business people will opt for immediate action. As business consultant, Tom Peters, put it: "Ready, fire, aim!" Educators want to aim, and aim carefully, before they fire. They want to think first—for good reason—and act later, sometimes so much later that action never quite happens.

Scenario planners in education need thus to make sure that the scenarios do not become pretexts for endless conversations. They need to make sure that the scenarios *get used to make decisions.* To that end, they need to make sure that those who are capable of making and implementing decisions take ownership of whatever ready-made scenarios are placed in front of them. And for that purpose, one of the best methods is to engage participants in a participatory exercise that *uses and enhances* the scenarios without necessarily disassembling and reassembling them.

In our experience, one of the best such exercises is the development of lists of *early indicators.* This exercise has a dual function: first, the process of brainstorming early indicators for each scenario requires an immersion in the content and logic of each scenario. As people try to imagine the first signs of a given scenario, they inevitably find themselves imaginatively occupying the world described by that scenario. Once so engaged, and once they find themselves contributing early indicators, they are more likely to take ownership of the scenarios. Where this first function may be a covert result of the *process* of engagement, the second function is providing the overt product—the lists of early indicators. As the second half of this paper will argue in greater detail, early indicators—of scenarios, and of the success or failure of schools or individual students—are much more to be desired than trailing indicators when remediation is inevitably too late.

So to summarize this first methodological point about the uses of scenarios: the good news—their divergence allows different views a respectful hearing; the bad news—educators may listen and talk forever without acting. So make sure that people *engage* with the scenarios and use them to make and implement decisions. And to that end, engage them in the process of developing lists of early indicators.

Scenarios can stimulate new, visionary thinking

Just as we tend to parent the way we were parented, so we tend to educate the way we were educated. It is not easy to imagine genuinely new ways to do something so utterly familiar to all of us. So fundamental a feature of the human experience is about as subject to innovation as eating or sleeping. But we *have* changed our eating habits. Improved nutrition has extended life expectancy. Surely we should be able to imagine better ways to educate.

Part of the challenge lies not only in the inertia of fixed habits but in the systematic interconnections among the many parts of our educational systems. As systems theorists are wont to say, *you can't change just one thing.* Try to change one aspect of the curriculum—e.g., class size—and you upset other parts of

the system. In California, Governor Pete Wilson surprised both the citizens and the teachers' union with a reduced class size initiative. What a wonderful idea! We all knew that young children were not getting enough individualized attention in large classes. But what seemed like a good idea at the time had not been thought through. Had there been detailed scenarios, the Governor might have seen the consequences of the consequences, namely, that smaller classes would require more teachers and more classrooms. As it happened, the initiative resulted in a sharp increase in the number of inner-city children learning in makeshift trailers from hastily recruited and non-credentialed "teachers." What seemed like a good idea at the time ran the danger of increasing, not decreasing, the inequality between poor inner-city schools and rich suburban schools.

Scenarios, just because they are whole stories and not analytic theories, can provide a format for entertaining systemic change. Well short of pie-in-the-sky utopian thinking, positive scenarios can depict the interactions among the many, many parts of the education *system:* teachers, students, buildings, parents, the local community, new technology, the school-to-work transition, economics, etc. There is no single silver bullet for educational reform, and no one reform is likely to survive unless it is synched up with other parts of a *new* system that will support it. Change just one thing, and the rest of the system will pull that reform back into the old equilibrium, as many reformers have discovered. But in order to change everything at once, you need the kind of holistic, comprehensive vision that a positive scenario can provide.

Because systemic reform is so challenging, positive scenarios are intellectually very difficult to craft. Negative scenarios are much easier—you just describe the demise of what you already know. But positive scenarios must paint something new under the sun, a reality as yet unseen. For this reason, positive scenarios run the risk of rejection for being too Pollyannaish, too optimistic, too utopian. Just as it's difficult to anticipate technological breakthroughs—who knew they needed a Xerox machine before it was invented—so it is difficult to anticipate what a better school would look like. But unless we are prepared to believe that the schools we have are the best we *could* have, we have to believe that the breakthroughs are out there, just beyond the horizon of habit and familiarity. And scenarios are the tools for stimulating us to imagine those holistic, comprehensive, systemic reforms that go beyond silver bullet solutions.

In keeping with the methodological hint about using early indicators to engage audiences in scenarios they did not invent themselves, here is a hard won hint for shaping positive scenarios in a way that will enhance their acceptability: Let them be short, not long; sketchy, not detailed. In a book entitled *The Springboard: How Storytelling Ignites Action in Knowledge-Era Organizations,* Stephen Denning advocates what he calls a "minimalist" style of story-telling—brief vignettes that purposely leave a lot to the hearer's own imagination. Precisely by leaving a lot of space for the reader or hearer to fill in for him or herself, minimalist stories enhance the likelihood that the reader or hearer will take ownership of a story to which he or she has contributed.

Minimalist storytelling also manages a marriage of convenience with the main challenge of positive scenarios: Smarter minds than ours have tried to invent a better education, and they haven't succeeded yet. This is a *hard* problem. If we had solved it already, we'd already be in that more positive scenario. The fact that we *need* school reform is itself evidence that we lack the solutions we need to give a detailed description to a more positive scenario. So for that reason as well, best to leave the positive scenarios somewhat sketchy. Paint the allure, but leave a veil of unknowing. Precisely in order to seduce, don't try to show it all.

Scenarios as a Motivator for Getting Unstuck

The methodological advice is precisely opposite in the case of negative scenarios. Muster all the production values at your disposal to paint worst case scenarios that are so ugly they function like morality plays: There but for the grace of good planning go we, and we don't want to go there!

The movie, *The Day After Tomorrow,* does not claim to be great science but the special effects people in Hollywood and their portrait of New York under ice may have done more to stimulate broad concern about carbon-dioxide and rapid climate change than any number of scholarly discourses on the subject. Doom and gloom scenarios are psychologically difficult. We don't like worst case scenarios, even in our imagination. But, again, they are intellectually easy to draw. You don't have to invent a *better* way; you just have to destroy the existing way. By rehearsing the disaster in imagination, you may avoid it in reality. Negative scenarios drawn in all their gory detail can deliver a kind of *anticipatory disaster relief.* They can motivate the lethargic masses by putting the fear of God—or the hell of the worst case scenario—into them.

It's not hard to imagine bad scenarios for education. In *Savage Inequalities,* Jonathan Kozol describes schools so decrepit and classrooms so hopeless you want to weep. We've already seen how bad it can get in some places. It could get that bad in other places, too . . . unless we attend to those savage inequalities. The second part of this paper is therefore devoted to the issue of educational inequality, and what it might take to reduce it. While not cast in the form of a scenario—it is not a story with a beginning, middle, and an end—it nonetheless illustrates some of the methodological points made in this first part. Though far short of a systemic solution to educational reform, it provides a minimal sketch for improvement by way of an extended analogy between what I'll call "precision schooling," and the already existing practice of precision farming. It's just a sketch, but it highlights the importance of early indicators, and the promise of new information technologies.

1.2.　　A Declaration of Educational Equality

Over two centuries ago, America's *Declaration of Independence* stated, "All men are created equal." Women, unfortunately, had to wait over a century before they received the vote, and some women are waiting still for full respect of their humanity. And people of colour continue to fight racism and the legacies of disadvantage. Over a century ago The United States fought its only civil war to put an end to slavery. During the 1960s the civil rights movement, led by the likes of Martin Luther King Jr., sacrificed more lives to bring an end to segregation in our schools. The idea of "separate but equal" education did not deliver on the promise of equal rights to "life, liberty, and the pursuit of happiness."

The noble quest to honour the dignity of *all* citizens is being tested once again. For many reasons— from the invention of the automobile and the advent of the suburbs to the information revolution and the globalization of the job market—we now find ourselves in a situation where people of colour are not receiving the equal rights granted to them under the laws of most OECD countries. Nor are the poor in developing nations around the globe receiving the kind of schooling that would help lift them out of poverty.

Call the problem the crisis of urban education in the advanced nations, or—following Manuel Castells's description of pockets of poverty in both advanced and developing worlds in the new, globalised information economy—call it the crisis of the "black holes of informational capitalism."[1] In fact it is most sorely felt as a crisis for people of colour. During the last half of the 20th century, white flight from the centres of many major cities left minorities in old and run down schools while many of the mostly white children attended newer and better staffed schools in the suburbs man cities. *De jure,* the U.S. ended segregation with the Civil Rights Act of 1964 and Supreme Court decisions like *Brown vs. the Board of*

Education. But *de facto,* segregation is still with us. The facts are overwhelming and irrefutable. When you compare the educational performance of inner city children with suburban children, you find an intolerable gap in achievement.

This gap is morally intolerable. We are all the worse if some of us are denied the tools they need to pursue life, liberty and happiness. This gap is also economically intolerable. In the information age, in what some call the knowledge economy, we are all worse off if some of us cannot read. We are all worse off if some of us cannot write. We are all worse off if some of us cannot solve the simple tasks of reading a bus schedule or writing a check. We are all worse off if some of us can't cope with more complex tasks like filling out the forms to manage our own health or the health of our loved ones.

The benefits of the information revolution and the knowledge economy extend mainly to those who have the knowledge to use information to their own and others' benefit. As long as we fail to close the education gap between people of colour in our inner cities and the rest of our children, we will be denying those minority children their hard won rights to life, liberty, and the pursuit of happiness. And we will be denying our economies a crucial resource: a skilled labour force capable of competing in today's global economy.

Educational inequity is everybody's problem. We all have much to gain—or much to lose—depending on how well we address what one of our most eloquent writers on education, Jonathan Kozol, calls *Savage Inequalities*. You cannot blame parents, black or white, for moving to the suburbs to find better schools for their children. And you cannot blame minorities for poor academic achievement in schools that their classmates abandoned for good reason. But you can and should expect the citizens of the OECD nations to tackle a problem which, left unsolved, will hurt all of us.

We must come to grips with educational inequity—boldly, intelligently, and with the courage of our convictions. If the great mission of the 20th Century was to extend the vote to many people worldwide, regardless of race, religion, or gender, then the great mission of the 21st Century may well be the extension of educational equity to all people, regardless of race, religion, or gender.

Almost 40 years ago President Lyndon Johnson declared a "War on Poverty." Institutions like The World Bank, the IMF and the OECD have been fighting this war around the world. We have not won this war, in part because we mistook the real enemy. In a knowledge economy, the only way you can win the war on poverty is to wage war on ignorance. We can finally win the war on poverty if, first, we win the war on ignorance. But in order to win the war on ignorance, we need to address the black holes of informational capitalism in developing nations and in the urban ghettoes within the nations of the OECD. How will we go about solving the problems of educational inequity and *de facto* segregation? And what should the role of federal governments be in providing a solution?

The first step consists in recognizing the seriousness of the problem. The second consists in gaining clarity about its origins and causes. Our public schools bear the scars of their birth in the agricultural and industrial eras. Unlike other professionals, teachers get long summer vacations because, when our public school system was first founded, students were expected to spend their summers tending animals and harvesting crops.

The industrial revolution also left its marks on our schools. During the first half of the 20th century there was a major change in the way we educated our children. Educators were deeply influenced by the lessons of scientific management that allowed the industrial revolution to lift so many out of poverty. Henry Ford introduced methods of mass manufacturing for the mass market of America's increasing middle class. Where craftsmen in the 19th Century hand-crafted carriages one by one for an elite clientele, Henry Ford invented the assembly line to mass-manufacture identical Model-Ts at a price his workers

could afford. The cars were cheap because they were produced by the tens of thousands. Mass manufacturing relied on economies of scale.

Scientific management and the industrial revolution were great achievements that helped to build the economies of the OECD. No wonder our educators wanted to model schools after factories. The scientific progressives of the early 20th century achieved economies of scale in education by creating large schools to replace the one room school houses. Students were seated in rows as rational and orderly as the factory floor. In the name of equity, they were given identical lessons in lock-step sequences modelled on the assembly line.[2] Industrial age education worked after a fashion. High school graduation rates increased many-fold in OECD nations between 1900 and 1960.

But that was then, and this is now. That was the industrial era improving on the one room school houses of the agricultural era. Now we are heirs to an information revolution every bit as important as the industrial revolution. But we haven't yet updated our schools according to the lessons of the information revolution.

Industry now uses the fruits of the information revolution to achieve efficiencies without resorting to economies of scale. Rather than relying on mass markets that want more and more of the same, same, same, new methods of manufacturing use computers to customize different products for different customers.

1.3. From Precision Farming to Precision Schooling

Not just industrialists but farmers as well are using the fruits of the information revolution to improve their yields. In the past ten years, information technology has come to agriculture under the name Precision Farming. Farmers now track last year's yields foot by foot as their combines cross their fields. They use satellite imagery to spot patterns on their fields, sensors on the ground to test for moisture, and global positioning satellites and onboard computers to customize the distribution of seeds, water, herbicides and fertilizers foot by foot as their combines cross their fields.

Some information is gathered at harvest time. Equipped with GPS, a combine can pick and weigh a crop and record the information as it crosses a field. (Think of outcomes, standards, and accountability as analogues.) GPS, plus data storage in an onboard computer, can record the yield from every square foot of field. This information is then used when the field is next tilled, planted, treated and fertilized. Sensors on the ground and satellite imagery also gather information on soil quality and moisture. That information, too, can be factored into the application of seeds, herbicides and fertilizer, foot by foot across a field, all automatically as an onboard computer adjusts the settings for sowing, tillage, fertilization, or spraying. By knowing what each square foot of field needs, then using that knowledge to administer what is wanted, precision farming moves beyond an industrial paradigm.

In the past, the fertilizer plant mixed the ingredients in known proportions, and the farmer distributed them from one tank in the field. However, today's most advanced equipment carries the fertilizer elements in separate tanks, both to and in the field, and mixes them on-the-fly just before dispersal. To accomplish this, the farmer must mount a GPS receiver on the fertilizer truck so that the equipment knows its location in the field. An in-vehicle computer must contain the fertilizer-needs maps, which it compares to the field position data arriving from the GPS receiver. It also controls the distribution valves and gates to provide an appropriate fertilizer mix.

As the truck moves about the field, thus changing the GPS-derived address, the fertilizer mix will change as directed by the fertilizer-needs maps. When everything is working right, the equipment applies the appropriate amount of each fertilizer element to every area (site) in the field. This is where the words

'site-specific-farming' were derived. [Think 'site-based management' as the educational analogue.] Each site in a field is treated uniquely according to its needs. Not only does this process have the potential to reduce the amount of fertilizer used, and thereby lower cost, it also has the potential to protect the environment by minimizing the quantity of chemicals released.[3]

The old industrial paradigm would "mass manufacture" plants using a standardized, uniform distribution of elements. The new paradigm treats each plant site individually, optimizing the mix of elements—what is wanted and what is provided—foot by foot. We used to ask, "If we can put a man on the moon, why can't we [and we would fill in the blank with phrases like 'end poverty,' or 'cure cancer?']" Let us now ask, "If we can apply technology to optimize our farming, individual plant by individual plant, then why can't we apply technology to optimizing our schooling, individual student by individual student?"

Once upon a time we farmed and we schooled individual by individual. A farmer walking his fields could treat different plants differently depending on an up close appraisal of what each plant needed. The teacher in the one room school house could treat each student individually because she knew them each as individuals. Then the industrial paradigm took over, both in agriculture and in education. Individual-by-individual craftsmanship was inefficient. We started mass manufacturing both plants and students. Industrial agribusiness worked pretty well at increasing crop yields. Mass manufacturing students according to an industrial paradigm was less successful. It seems that students are less responsive to standardized procedures than plants. One size/dose does not fit all, whether we're talking about fertilizer or arithmetic. But plants don't talk back, at least not so as most of us can hear them.

The industrial paradigm works with economies of scale: The more widgets you produce using the very same elements and procedures, the lower the cost per widget. Impressed by the economies of scale achieved by industry, our schools and our farms both fell under the influence of the industrial paradigm. But now industry itself, in our new information era, is yielding to what some call "a post-Fordist paradigm." Using computers and programmable robotics, our manufacturing facilities are achieving economies of scale with much shorter runs. They call it "adjustable manufacturing." Levi's can be cut to order using information gathered about individual bodies. Benetton can adjust the mix of dyes and colours upstream at its manufacturing facilities depending on the colours that consumers pulled off the shelf on any given day. By retrieving that information from every Benetton shop in the world every day, Benetton can optimize its supply chain to meet customer needs and desires for the immediately following days. And now even agriculture is yielding to this post-industrial, information-driven, post-Fordist paradigm. Can education be far behind?

For many decades, education was managed according to inputs: How many teachers? How much seniority did each teacher have? How many hours of in-service training? These were the criteria used to allocate resources and adjust rewards. Now, as in other industries like health care, the attention is shifting from inputs to outputs. In health care we hear talk of "outcomes research." In education we hear talk of standards and accountability.

What precision farming adds to the picture is a portrait of the way the measurement of outputs can be used in real time: "on-the-fly just before dispersal," as the quotation above puts it. It's important to know that one hospital has a better record of results than another in its cardiology unit when your mate needs bypass surgery. It's important to know that one school does better than another at getting its graduates into their first-choice colleges. But how much better it would be if the measurement of outputs could be combined with the measurement of conditions "foot by foot" and "on-the-fly" so that inputs could be adjusted in real time to treat each student "uniquely according to its needs."

School district turnaround consultant, Karen Hawley-Miles writes:

We already know that most urban schools do not meet state or district performance standards. Student performance is a lagging, not immediate measure of whether schools are providing the kind of instruction that is likely to improve student performance. Estimates of how long it takes to improve test scores range from three to seven years... Reviews of efforts to intervene once schools have failed show that such rescue attempts are unpredictable and expensive. By the time a school has dramatically failed, the cost to turn it around can be high and the time it takes to do so even longer.[4]

Efforts at farming once fields have failed—once the nutrients have been stripped, or erosion has taken its toll leaving dust or hard-pan—are likewise unfruitful. So farmers don't wait for fields to fail. They close the cybernetic feedback loop from assessment to intervention in real time, minute by minute, as combines cross fields, foot by foot. Hawley-Miles suggests the need for *leading* indicators of performance rather than lagging indicators of failure. If we can find leading indicators analogous to the evidence of on-the-ground sensors and satellite imagery, then we'll gain the "Ability to act *quickly* to *support* and make necessary *changes* in failing schools."

How far can we push this analogy? Clearly there are limits to both its accuracy and its usefulness. One thinks of the character, Chauncey Gardner in Jerzy Kozinski's novel (and the movie starring Peter Sellars), *Being There.* Gardening images seemed to provide profound and refreshing insights compared to the stale rhetoric of Washington politics: "A time to plant . . . a time to harvest . . ." Let's beware of pushing this analogy too far. Children are not vegetables. There are important differences between plants and higher vertebrates, most especially those that can talk. Vegetables may be more complex than the inorganic materials that are baked and bent by industrial processes, but children are even more complex than vegetables. Hence Hawley-Miles cautions: "The idea of measuring leading indicators of instructional improvement does not suggest mandating a particular curriculum, instructional approach or way of organizing schools."

Even if we had better measures of success or failure, school by school or student by student, it's not clear that we know what to do with that data. We probably know more about what it takes to grow asparagus under different conditions than we know about what it takes to grow young minds under different condition. We lack the educational equivalent of a precisely articulated formula for balancing the mix of nutrients needed for maximum plant growth because human beings are far more complex than artichokes. And so much the better! Let's hear it for human freedom and creativity, even if we pay a price in complexity!

To be more specific about the *differences* between children and vegetables, it's worth pausing on what we are learning about the differences between children. As we made the transition from the agricultural era to the industrial era, one of the main missions of the public education system—in the United States at least—was to *socialize* children from many different backgrounds. As rural families came down off the farms to find jobs in cities, and as immigrant families came to America from different lands, there was a need to offer a common curriculum that would socialize children toward a common experience of shared citizenry.

In the information era, the job of socialization is largely accomplished by the media. The first signs of this functionality of the media came when families huddled around their radios to hear the first national broadcasts. Today, much to the chagrin of the French, American media beam American culture worldwide. The job of shared socialization is being accomplished all-too-well for those who would like to protect indigenous cultures. But this means that the mission of public education can shift: from industrial era standardization to information era customization. Like information era farmers, information era educators can afford to treat each student differently, and the differences that make a difference are not only

differences in age, income, and ability—analogous to plant heights and irrigation needs—*but also differences in learning style.*

As a result of the pioneering work of Harvard psychologist, Howard Gardner, we now have a cogent theory, and an increasing body of evidence, to support the idea that simple measures like IQ as measured by Alfred Binet need to be supplemented by subtler diagnostics on at least seven different types of intelligence—linguistic, musical, logical-mathematical, spatial, bodily-kinaesthetic, inter-personal, and intra-personal intelligence.[5] Skilled teachers have always recognized that some students learn better by listening, others by reading, still others by acting out new ideas with their whole bodies. Now we have a theory that allows us to diagnose and systematize these different aptitudes.

In the future, there is every reason to believe that we will have learning tools that will allow us to diagnose each individual student in ways that will permit us to treat each student, individually, every hour of every day, "on the fly," with just those educational tools and lesson plans best suited to his or her needs and aptitudes. We will have interactive educational computer games that will automatically diagnose each player's learning style. Such software will accommodate itself not only to so-called "self-paced learning;" it will also permit self-styled learning.

With due respect to the differences between growing minds and growing plants, the force of the precision farming analogy is to underline the fact that we are currently acting as if we do have the formula for raising minds, and it's *one size fits all.* Much of the rhetoric of the standards movement pushes toward industrial era standardization. The power of the precision farming analogy is to stress the need for more accurate early indicators and assessment tools in order to make non-standard adjustments "on the fly"--granting the fact that we still lack a precisely articulated formula for adjusting our "nutrients" once we have better assessments.

Another aspect of precision farming might also suggest limits on how far we can push the analogy to precision schooling. When yield-mapping technology first emerged, many thought the goal would be to produce a uniformly high yield. However, the cost of such an approach (both in real dollars and in environmental impact) may lead toward a system that attempts to optimize yield in relation to profit. We may find that some areas should not be farmed. In fact, precision farming may cause farmers to adopt practices that produce even more yield variability than they initially found in the fields.[6] Because farmers needn't value the dignity of every plant, it makes sense to *optimize* rather than maximize or equalize. But educators committed to equity should not be willing to write off a single school or a single student.

Granting such limitations to the analogy, however, it is precisely the distinction between equity and equality that calls for careful assessment of leading indicators and quick interventions. 'Equality' can be legislated, and equal dollars per student may flow to different schools. But a closer look at the differing needs of different students—special education, bilingual education, students at risk, and different learning styles for different types of intelligence—shows that the industrial standardization of 'equality' is not adequate. In place of industrial standardization, we need a more organic understanding of different needs and how to satisfy them. And for that understanding, we could do worse than take a few lessons from the analogy with precision farming. There we find the application of information technology to the task of identifying different needs, and real-time interventions applying different "solutions" to make a difference "on the fly." If farmers can grow cornstalks one by one using information to customize their nutrients one stalk at a time, isn't it high time that we educate our children one by one, one student at a time?

According to the old industrial model, equity meant equality: masses and masses of the same and the same. When someone suggested to Henry Ford that he produce Model-Ts in different colours, he replied, "They can have any colour they want so long as it's black." Given the manufacturing methods of his time, to introduce other colours would have been more expensive. But with computer-aided manufacturing,

different colours, even different colour combinations, are less costly. Information technology makes custom colouring affordable, just as it makes custom fertilizing affordable. A farmer tries to grow equally tall corn by adding different amounts of nutrients as needed by each different plant.

Likewise with education, equity is not achieved by pumping the same inputs into every school. An information age approach to schooling can close the gap by treating each school, each student, differently as needs require. You use information technology to identify particular needs, and then you meet those needs by using information technology to administer different "nutrients" affordably.

Skilled teachers have always known that each child is unique, and they've done their best to teach one student at a time. But skilled teachers have been fighting uphill against over-crowded, factory-like classrooms and assembly-line lesson plans. In order to achieve educational equity in the information era, we need to make a break from the old industrial-era model of mass-manufacturing well-socialized, identical students. We need to gather information about each district, each school, each student, and use that information to adjust the levels of "nutrients"—whether dollars, or teachers, or text books, or computers—as each school, each student requires. As the example of precision farming shows, this is an affordable, attainable dream in the information age.

We've already begun to gather some of the information we need. This is what the educational standards movement is all about—finding out who is doing well and who is not. But the standards movement, at least as it is currently being practiced in the United States, is out of step with the information revolution. It is entirely too focused on standardization—as if the federal government were trying to tell each and every state and school district how to run its schools. Educational standards could be used to gather information to treat different schools differently in order to achieve educational equity. But in most States and most school districts, the standards movement has become a club to punish under-performing schools, not a diagnostic tool to enhance the education of individual students. Just as the farmers need those geographic positioning satellites looking over everybody, so we need some national standards as tools of measurement. But we must use that information to differentiate: to customize the spread of nutrients, not to impose some uniform solution.

1.4.   Differences that Make a Difference

If our first principle for reform is educational equity, then our second principle, derived from the difference between the industrial era and the information era, is that equity calls for differences that make a difference, not just a uniform spread of the same standardized inputs. Consider a third principle that should guide our retooling of education for the information era. That third principle is the role of market forces when it comes to spreading valuable resources. Government still has a job to do. But government's job has more to do with assuring that markets operate fairly and properly.

How might market mechanisms apply to public education? Our public education system has been described as the last bastion of socialist bureaucracy. School boards and district central offices operate like state monopolies. Parents and students have no other choice of provider, as they would in a free market. In most businesses a manager can make changes to accommodate the different needs of different customers. But after decades of tough negotiations between school boards and teachers' unions, the public education system, in the U.S. at least, has become hog-tied by hundreds of agreements that forbid teachers and principals from making the changes needed by students. The American public education system is not so much broken as it is locked—frozen into immobility by miles of print in volumes of code sitting on yards of shelves in every state capitol. We must unlock this system if we are to unleash the innovation we need to educate our children for the Information Age.

Let's not blame the unions for defending the interests of underpaid teachers. Let's not blame the school boards or superintendents or their staffs in those much maligned central offices. These are for the most part good people trying to do the best job they can. But the game has been rigged in such a way that the harder you play, the more you lose. Teachers lose when the rules won't allow them to be rewarded for jobs well done. School administrators lose when the rules won't allow them the flexibility they need to make improvements. And worst of all, students lose when locked into obsolete, industrial assembly lines that gives them no choice among schools or teachers. We must cut through this educational gridlock and create the rules for a better game, one where students win and teachers and administrators win as well.

Here's how. First, we can use the information we are gathering from standard tests and other more subtle diagnostic tools to identify the needs of each student, each school, and each district.

Second, we can allow each school to purchase the supplies, the skills, the personnel it needs to satisfy the needs of its students. Because the information we gather will show that some students have special needs, schools will be allocated special funds to meet those special needs.

Third, students and their parents can be given the opportunity to shop around for the schools and teachers that best meet their needs. Funding will follow the flow of student choices. Schools will be allocated funds based on the needs of the students in their care. Schools that are chosen by unusually high numbers of students with special needs will be given correspondingly larger budgets. Those budgets can be spent on increased salaries for those unusually gifted and heroic teachers who can succeed with students at risk.

A system like this will allow market mechanisms to allocate valuable resources far more equitably than the system now in place. Market forces will reward results—outcomes rather than inputs. Our current system rewards inputs—years of service, courses taken, credentials—rather than proven effectiveness of teachers or schools. The genius of the market is precisely to process information: information about needs and preferences that a monopoly can afford to neglect. Part of the reason for the fall of Communism lay in the fact that centrally planned economies were literally *stupid:* They ignored information about individual needs and preferences because they had no way to register the results of preferential choices. Centrally planned economies were all push, no pull, all efferent nerves, no afferent nerves. Resources were allocated by central planners, not by the millions and millions of choices made everyday in the marketplace.

Clearly, markets have their limits. We now know better than to push for the privatization of everything. Market mechanisms tend to produce winners and losers. Wherever there is a social mandate for universal service—e.g., for communications systems, national security, health care, *and education*—there is a role for governments to play in compensating for market imperfections. But an abiding role for government should not fool us into thinking that centrally planned education monopolies are superior to a combination of market mechanisms and governmental oversight.

We should be prepared to pay much more for good teachers than we pay them today. Good teachers deserve to be compensated like other skilled professionals. But we will not be able to free up the funds to reward those good teachers until we break the rule-bound bureaucratic gridlock of most current systems. If we're going to pay more to those teachers who step in to close the gap between inner-city students and others, where are we going to get the money? A fourth principle says that *urban education is a national crisis that national governments must address.* Our largest cities are national cities, not just the prides of different states or provinces. Some have even called them global cities.[7] New York and London are the financial capitals of the world. Paris and Milan are the fashion capitals of the world. The San Francisco Bay Area is the global capital of the internet. Sydney and Brisbane serve many needs throughout Southeast Asia. It would be wrong to expect local districts to shoulder by themselves the costs of closing the gaps in their urban schools. This is a job for federal governments.

Still, education is a local responsibility because young children need to sleep in their own beds at night, close to their parents and their local jobs. Unlike manufactured goods that can travel from low cost producers to consumers around the world, schools are as geographically rooted as corn stalks. Children should go to schools in their own neighbourhoods. Like good managers of successful businesses, local school boards should have the ability to make decisions about the allocation of precious resources. The reforms we need will not take the form of some single cookie-cutter plan imposed on all states, all provinces, and all school districts. Quite to the contrary, by introducing market forces into the system, we can allow different districts to purchase the resources they need to meet the different needs of the students they know best. But you can't send someone to market with no money and then expect market mechanisms to work fairly.

The way the system is now operating, urban districts are at a disadvantage. In the U.S., 18 different States have declared their current educational funding systems unconstitutional because they fail to deliver on the constitutional promise to educational equity. We must right this wrong, but not by taking money away from some to compensate others. Left to their own devices, different States could achieve equity only by redistribution—levelling to the middle, taking from the privileged to compensate the under-privileged. Because educational equity is a national if not a global problem, federal governments need to get involved to level the playing field by "levelling up"—by giving extra funds to urban districts so that they can come to market with the funds they need.

To summarize the principles that will guide us going forward:

- First, equity as the equal right to life, liberty, and the pursuit of happiness which, in the information age, demands an end to ignorance.

- Second, in this information era, equity calls for *differences that make a difference*, not just a uniform spread of the same standardized inputs.

- Third, market mechanisms must supplement down-from-the top bureaucracy when it comes to allocating different resources to different local needs.

- Fourth, while education is a local responsibility, federal governments have a job to do to make sure that urban districts have the funds they need to level up.

Putting these principles into practice is a big job. It calls for leadership and local support. We all have a lot to gain—students, teachers, school administrators, parents, and employers—if we can break the deadlock we've inherited from our agricultural and industrial models of education. We now live in an information era with a knowledge economy. We must wage a war on ignorance, a war we all can win.

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CHAPTER 2
SYSTEM THINKING, SYSTEM THINKERS AND SUSTAINABILITY
BY
MICHAEL FULLAN

The Schooling for Tomorrow project has focused to date on imagining possible futures through scenarios, powerful tools that enable decisions makers to envision multiple futures. Yet thinking about the future is not enough, it is also necessary to conceptualise how to change current systems in specific, powerful ways. Leaders today do not enlarge their perspectives by merely studying globalisation, they must also experience present-day worldliness. The programme must be developed in a way that enables participants to assess the implication of today's choices on tomorrow.

Three phenomena must be merged as the project moves forward: i) the challenge of change, ii) systems thinking, and iii) sustainability as the route to the future. The next step for Schooling for Tomorrow is to put in place more practical system thinkers, who in turn will guide other leaders in the same direction.

2.1.   Change Challenges

In recent years, there has been more attention paid to large-scale educational reform. One of the most ambitious examples of reform is England's National Literacy and Numeracy Strategy (NLNS). A multi-year evaluation of NLNS reached two main conclusions (Earl et al, 2003). On the one hand, NLNS was an impressive and huge success. Literacy and numeracy achievement for 11-year-olds increased from just over 60% in 1997, to about 755 in 2002—all this in 20,000 schools. On the other hand, the results levelled off in 2001, and have stayed at that level to the present. This plateau effect—which has been seen in other large scale projects involving whole school districts—signifies that the strategies that generated the earlier results were not sustainable in the next phase of reform. A different approach was needed.

Heifetz and Linsky (2002) confirm this conclusion in their distinction between technical problems (still difficult) for which the existing knowledge base is sufficient to address the problem, and adaptive challenges, for which current knowledge is not available to resolve the problem. The main properties of adaptive challenges can be defined as follows:

1.   The solution is beyond our current repertoire.

2.   Adaptive work requires difficult learning.

3.   The people with the problem are the problem and the solution.

4.   Adaptive work generates disequilibrium and avoidance.

5.   Adaptive work takes a longer time to work on effectively.

There is no doubt that the Schooling for Tomorrow project represents an adaptive challenge of the highest order. Therefore, it will require new approaches that draw especially on systems and sustainability.

2.2.   Systems Thinking

Clearly, systems thinking is relevant to changing organisations. This chapter argues that for systems thinking to be practically useful, practitioner-based system thinkers must be developed in action. In this respect the promise of system-thinking has fallen woefully short. No real practical progress has been made in actually promoting systems thinking since Peter Senge (1990) first raised the matter. As Senge laid out the argument:

> Human endeavours are also systems. They … are bound by invisible fabrics of interrelated actions, which often take years to fully play out their effects on each other. Since we are part of the lacework work ourselves, it is doubly hard to see the whole pattern of change. Instead, we tend to focus on snapshots of isolated parts of the system, and wonder why our deepest problems never seem to get solved. Systems thinking is a conceptual framework, a body of knowledge and tools that has been developed over the past fifty years, to make the full patterns clearer, and *to help us see how to change them effectively*. [Senge, 1990, p. 7, my emphasis]

Recall that systems thinking is the fifth discipline that integrates the other four disciplines: personal mastery, mental models, building shared vision, and team learning. Philosophically, Senge is on the right track, but his ideas aren't very helpful in practice:

> [Systems thinking] is the discipline that integrates the disciplines, fusing them into a coherent body of theory and practice. It keeps them from being separate gimmicks or the latest organisation fads. Without a systemic orientation, there is no motivation to look at how the disciplines interrelate …
>
> At the heart of a learning organisation is a shift of mind—from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something "out there" to seeing how our own actions create the problems we experience. A learning organisation is a place where people are continually discovering how they create their reality *and how they can change it.* [pp. 12, 13, my emphasis]

As valid as the argument may be, there is no programme of development that has actually formed leaders to become greater, practical systems thinkers. Until we do this we cannot expect the organisation or system to become transformed. The key to doing this is to link systems thinking with sustainability - defined as the capacity of a system to engage in the complexities of continuous improvement consistent with deep values of human purpose.

2.3.   Sustainability

Conceptually the new work of leaders embraces systems thinking *and* sustainability in a way that grounds them practically in local context. The key to moving forward is to enable leaders to experience and become more effective at leading organisations toward greater sustainability.

Fullan (2005) defines eight elements of sustainability:

1.   Public service with a moral purpose

2.   Commitment to changing context at all levels

3.   Lateral capacity-building through networks

4.   Intelligent accountability and new vertical relationships

5. Deep learning

6. Dual commitment to short-term and long-term results

7. Cyclical energising

8. The long lever of leadership

In the remainder of this paper, I shall elaborate further on these elements of sustainability.

Public service with a moral purpose

Moral purpose must transcend the individual to become an organisation and system quality which collectivities are committed to pursuing in all of their core activities (Fullan, 2003b). Moral purpose can be defined in three ways with respect to schools: (i) commitment to raising the bar and closing the gap of student achievement; (ii) respectful treatment of people without lowering expectations; and (iii) orientation to environmental improvement, including other schools in the district. Corporate organisations as well as public institutions must embrace moral purpose if they wish to succeed over the long run.

Commitment to changing context at all levels

David Hargreaves (2003) recalls Donald Schon's observation over thirty years ago:

> We must … become adept at learning. We must become able not only to transform our institutions, in response to changing situations and requirements; we must invest and develop institutions which are 'learning systems', that is to say, systems capable of bringing about their own continuing transformation [p. 74].

It is not Schon's fault that 30 years later this advice remains totally accurate and totally useless. How do you enter the chicken and egg equation of starting down the path of generating learning systems in practice, especially in an era of transparent accountability? This article provides practical response to this question: there is now more powerful evidence that 'changing the system' is an essential component of producing learning organisations.

Changing whole systems means changing the entire context within which people work. Researchers are fond of observing that 'context is everything' usually in reference to the success of a particular innovation in one situation but not in another. If context is everything, then emphasis must be placed on how it can be changed for the better. This task is not as impossible as it sounds but will take time and cumulative effort. The good news is that once contextual change is underway, it has self-generating powers to go further.

Contexts are the structure and cultures within which one works. In the case of educators, the tri-level contexts are school/community, district, and system. The critical question to ask is whether strategies can be identified that will indeed change in a desirable direction the contexts that affect us? Currently these contexts have a neutral or adverse impact on what we do.

On the small scale, Gladwell (2000) has already identified context as a key *Tipping Point*: "the power of context says that what really matters is the little things" (p. 150). If you want to change people's behaviour, "you need to create a community around them, where these new beliefs could be practical, expressed and nurtured" (p. 173). Drawing from complexity theory, I have argued elsewhere that in order to attain system change, the amount of purposeful interaction between and among *individuals* within and across the tri-levels, and indeed within and across *systems* must be increased (Fullan, 2003a).

Therefore, the most essential first step is a commitment to changing context. The remaining six elements of sustainability, which work on a more practical level, follow automatically once the commitment to change has been reached. Commitment to change gives people new experiences, new capacities, and new insights into what should and can be accomplished. It gives people a taste of the power of new context, none more so than the discovery of lateral capacity building'.

Lateral capacity-building through networks

In the past few years, lateral capacity has been discovered as a powerful strategy for school improvement. This discovery was multi-phased. First, greater accountability leading to the realisation that support or capacity building was essential. This in turn led to vertical capacity-building with external trainers at the district or other levels, which finally led to the realisation that lateral capacity-building across peers was a powerful learning strategy.

A systematic strategy-driven use of networks and collaboratives is evolving in England, partly as a response to the limitations of 'informed prescription'. Many of the new network strategies are being developed by the National College of Schools Leadership (NCSL). For example, a consultant leaders programme now engages 1,000 of the most effective elementary school principals in the country working with 4,000 other schools In this one strategy alone, 25% of all school principals in the country are involved in mutual learning.

There are a number of obvious benefits from lateral strategies (see also Hargreaves, 2003, *Education Epidemic*). People learn best from peers - fellow travellers who are further down the road - if there is sufficient opportunity for ongoing, purposeful exchange. The system is designed to foster, develop and disseminate innovative practices that work—discoveries that are in the mode of Heifetz's adaptive challenges: 'solutions that lie outside the current way of operating'. Leadership is developed and mobilised in many quarters. At the same time motivation and ownership—a key ingredient for sustainability of effort and engagement—is deepened at the local level.

Lateral capacity, however, is not the only strategy at work but functions in relationship to the other seven elements of sustainability. Complexity theory states that if the amount of purposeful interaction is increased and infused with the checks and balances of quality knowledge, *self-organising* patterns (desirable outcomes) will accrue. This promise is not good enough for the sustainable-seeking society with a sense of urgency. There are at least two problems. One concerns how the issues being investigated can result in disciplined inquiry and innovative results; the other raises the question of how good ideas being generated by networks can be integrated in the line operation of organisations.

Intelligent accountability and vertical relationships

Sustainable societies must solve, i.e. hold in dynamic 'tension', the perennial change problem of how to attain system-wide local ownership (including capacity) and external accountability at the same time. These problems can only be solved locally:

> Solutions rely, at least in part, on the users themselves and their capacity to take school responsibility for positive outcomes. In learning, health, work, and even parenting, positive outcomes arise from a combination of personal effort and wider social resources [Bentley & Wilsdon, 2003, p. 20].

Yet what will motivate people to seek positive outcomes? Furthermore, how are people and groups to be held accountable for the public or corporate good? The answer is a mixture of collaboration and networks with what David Miliband, the former UK Schools Minister, calls 'intelligent accountability'. Networks and other professional learning communities (lateral capacity-building) do build in a strong yet

incomplete measure of accountability. As such, communities interact to solve given problems in order to generate better practices, shared commitment, and peer accountability. Collaborative cultures are demanding when it comes to results; and the demand is telling because it is peer-based and up close on a daily basis.

At the same time, vertical relationships (state/district, district/school, etc.) must be strengthened not only in terms of support and resources but also accountability. Some of these vertical relationships will come in the form of element five (deep learning) and six (short-term and long-term results). It will be difficult to find the right balance of vertical authority accountability — too much direction demotivates people; too little permits drift or worse.

To address this problem, a strategy, "self-evaluation," that has been around for at least 20 years must be reintroduced. In the past, self-evaluation has been touted as an alternative to top-down assessment. In fact, we need to conceive self-evaluation and use it as a both/and solution.

Miliband (2004) in a recent speech advocated:

> An accountability framework, which puts a premium on ensuring effective and ongoing self-evaluation in every school combined with more focused external inspection, linked closely to the improvement cycle of the school… First, we will work with the profession to create a suite of materials that will help schools evaluate themselves honestly. The balance here is between making the process over-prescriptive, and making it just an occasional one-off event. In the best schools it is continuous, searching and objective. Second, [we] will shortly be making proposals on inspection, which take full account of a school's self-evaluation. A critical test of the strong school will be the quality of its self-evaluation and how it is used to raise standards. Third, the Government and its partners at local and national level will increasingly use the information provided by a school's self-evaluation and development plan, alongside inspection, to inform outcomes about targeting support and challenge. [pp. 6,8]

Not all systems have a formal inspection agency as in England. However, all systems do have some form of external accountability, which must be reconstituted so that it is too integrated with self-evaluation. And yes, it is extremely difficult to combine self-evaluation and outside evaluation, but herein lies the sophistication of sustainability—for the latter to have a chance, *the whole system* must be involved in a co-dependent partnership that is open to addressing problems as they arise.

Deep Learning

Sustainability as defined in this paper requires continuous improvement, adaptation, and collective problem-solving in the face of complex challenges that keep arising. As Heifetz and Linsky say, adaptive work "demands learning," "demands experimentation," and "difficult conversations." Similarly, "species evolve whereas cultures learn".

There are three major requirements for the data-driven society: drive out fear; set up a system of transparent data-gathering coupled with mechanisms for acting on the data; make sure *all* levels of the system are expected to learn from their experiences. One of W.E. Deming's (1986) prescriptions for success was 'Drive out Fear'. In the *Education Epidemic*, David Hargreaves argues:

Government must give active permission to schools to innovate and provide a climate in which failure can be viewed as a necessary element in making progress as is the case in the business world. In other words, mistakes can be accepted or even encouraged, provided that they are a means of improvement. [p. 36]

Pfeffer and Sutton (2000) in the 'Knowing-Doing Gap' devote a whole chapter to 'When Fear Prevents Acting on Knowledge': "In organisation after organisation that failed to translate knowledge into action, we saw a pervasive atmosphere of fear and distrust." [p. 109] Significantly, Pfeffer and Sutton identify two other "pernicious effects." One is that "fear causes a focus on the short run [driving] out consideration of the longer run" (pp. 124-125). The other problem is that "fear creates a focus on the individual rather than the collective (p. 126). In a punitive culture, if I can blame others, or others make a mistake, I am better off. Need I say that both the focus on the short run and excessive individualism are fateful for sustainability?

Second, capacities and means of acting on the data are critical for learning. Thus, "assessment for learning" has become a powerful, high yield tool for school improvement and student learning (see Black, et al, 2003). There are two critical aspects of the move toward more effective data use include. First, avoid excessive assessment demands (Miliband talks about reducing necessary paper and information burden which distract schools from their core business). Second, ensure that a range of qualitative as well as quantitative data are collected. In discussion of knowledge building in "Leading in a Culture of Change", I site several examples including the US Army's After Action Reviews which have three standardised questions: What was supposed to happen? What happened? And what accounts for the differences? This kind of learning is directed to the future, i.e., to sustainable improvements.

Deep learning means collaborative cultures of inquiry which alter the culture of learning in the organisation away from dysfunctional and non-relationships toward the daily development of culture that can solve difficult or adaptive problems (see especially Kegan & Lahey, 2001, and Perkins, 2003). In a development sense, there is need to train and mentor current and potential future leaders so that they can become proficient at shaping the culture of the organisation in the direction of day-to-day interactions that represent continuous learning.

The "curriculum" for doing this is contained in Kegan & Lahey's seven languages for transformation (e.g., from the language of complaint to the language of commitment), and in Perkin's developmental leadership which represents "progressive interaction" which evokes the exchange of good ideas, and fosters the cohesiveness of the group. These new ways of working involve deep changes in the culture of most organisations, and thus the training and development must be sophisticated and intense.

Dual commitment to short-term and long-term results

Like most aspects of sustainability, things that appear to be mutually exclusive must be brought together. It is a pipedream to argue only for the long-term goal of organisations or society. Shareholders and the public would never permit this. The new reality is that governments and organisations have to show progress in relation to both short- and long-term priorities. Our knowledge base is such that there is no excuse for failing to design and implement strategies that get short-term results.

Of course, short-term progress can be accomplished at the expense of the mid- to long-term (win the battle, lose the war), but they don't have to be. I advocate that organisations set targets and take action to obtain early results and intervene in situations of terrible performance; at the same time, they must invest in the eight sustainability capacity-building elements described in this article. Over time, the system grows stronger and fewer severe problems occur as they are pre-empted by corrective action sooner rather than later. Shorter term results are also necessary to build trust with the public or shareholders for longer term investments. Michael Barber (2004) argues that it is necessary to:

> Create the virtuous circle where public education delivers results, the public gains confidence and is therefore willing to invest through taxation and, as a consequence, the system is able to improve further. It is for this reason that the long-term strategy requires short-term results.

Cyclical energising

Sustain is derived from the Latin word, *sustineo*, which means 'to keep up.' However, this definition is misleading for sustainability is not linear. On the contrary, it is cyclical for two fundamental reasons. One has to do with energy, and the other with periodic plateaus where additional time and ingenuity are required for the next adaptive breakthrough. Loehr and Schwartz's (2003) 'power of full engagement' argue that 'energy, not time' is the fundamental currency of high performance. They base their work on four principles:

> *Principle 1*: Full engagement requires four separate but related sources of energy: physical, emotional, mental, and spiritual [p. 9]
>
> *Principle 2:* Because energy capacity diminishes both with overuse and under-use, we must balance energy expenditure with intermittent energy renewal [p. 11]
>
> *Principle 3:* To build capacity, we must push beyond our normal limits, training in the same systematic way that elite athletes do [p. 13]
>
> *Principle 4*: Positive energy rituals—highly specific routines for managing energy—are key to full engagement and sustained high performance [p. 14]

If we want sustainability we need to keep an eye on energy levels (overuse and under-use). Positive collaborative cultures will help because (a) they push for greater accomplishments, and (b) they avoid the debilitating effects of negative cultures. It is not hard work that tires us out, as much as it is negative work. In any case, we need combinations of full engagement with colleagues, along with less intensive activities which are associated with replenishment.

There is another reason why sustainability is cyclical. In many cases we have seen achievement in literacy and mathematics improve over a five-year period, only to plateau or level off. It may be related to burnout, but this is not likely the main explanation. People are still putting in a lot of energy to maintain the same higher level performance represented by the new plateau. If people were burning out, performance would likely *decline*.

A more likely explanation is that the set of strategies that brought initial success are not the ones—not powerful enough—to take us to higher levels. In these cases, we would expect the best learning organisations to investigate, learn, experiment, and develop better solutions. *This takes time*. (Incidentally, with the right kind of intelligent accountability we would know whether organisations are engaged in quality problem-solving processes even if their short-term outcomes are not showing increases.) While this new adaptive work is going on, we would not expect achievement scores to rise in a linear fashion, and any external assessment scheme that demanded 'annual yearly progress' would be barking up the wrong tree.

Cyclical energising is a powerful new idea. While we don't yet have the precision to know what cyclical energising looks like in detail, but the concept needs to be a fundamental element of our sustainability strategising.

The long lever of leadership

If a system is to be mobilised in the direction of sustainability, leadership at all levels of the system must be the primary engine. In this sense the main mark of a great leader at the end of his tenure is not his impact on the bottom line but especially how many leaders he leave behind who can progress even further. This work includes helping to put into place all eight elements of sustainability—with all eight feeding on

each other. To do this, we need organisations led by people who are trained and developed to think in bigger system terms and to act in ways that affect larger parts of the system.

2.4.   Conclusion

In sum, we need a new emphasis on developing leaders who can take more of a system perspective with a sustainability focus, who can in turn work to develop and support other leaders who can go even further. The agenda for schools for tomorrow is to establish actual examples of system change and to learn from them to go deeper.

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CHAPTER 3
SCENARIO DEVELOPMENT: A KALEIDOSCOPE OF APPROACHES
BY
PHILIP VAN NOTTEN

3.1 Introduction [1]

"The real voyage of discovery consists not in seeking new landscapes but in having new eyes", so French novelist Marcel Proust is quoted as saying. Schooling for Tomorrow works in the spirit of Proust's words in its choice of scenario development as a central component, with its aim to explore the future by looking at it from different perspectives and by challenging dominant assumptions. The current chapter seeks to locate SfT experiences in a typology of contemporary scenario practice and to use this to describe and comment on them. The chapter closes with observations about the state of scenario development today. In particular, attention is paid to the pitfall of 'cosmetic scenarios' and ideas are offered for developing meaningful scenarios so as to build a bridge with policy choices. Other pertinent issues are discussed, including how scenario approaches can be used, how they can be adapted to fit different tasks, and how countries might participate in the scenario study.

3.2 What is a scenario?

The word scenario is derived from the Latin 'scaena', meaning scene [1]. The term scenario was originally used in the context of such performing arts as theatre and film. Kahn adopted the term because of its emphasis on storytelling. Since then the use of the term has changed somewhat. Sparrow [2] notes four contemporary uses of the word.

- One is synonymous with sensitivity analysis, whether in cash flow management, broader risk assessment, or project management.

- The second, used in the context of military strategic planning, is synonymous with the idea of a contingency plan that defines who is to do what during a particular event. This interpretation of the term scenario can also be found in the context of planning for civil emergency situations.

- In a third meaning, derived from military planning and used in the context of decision-making in public policy or commercial strategy, the scenario is also synonymous with a contingency plan.

- Sparrow argues that 'planners' who advise decision-makers hold a fourth interpretation, which regards scenarios in a more exploratory light. By planners' definition, a scenario is less a strategy than a coherently structured speculation. However, the distinction is not always recognised [3]. The fourth meaning nevertheless forms the focus of our research.

There are numerous views on the best definition of a scenario, but on one point there is a consensus: *it is not a prediction* [4]. Characteristics proposed by the various definitions include a scenario's hypothetical

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[1]   Parts of this chapter are based on PhD-research described in: Van Notten, Philip W.F., Writing on the Wall: Scenario development in times of discontinuity, Rozenberg Publishers: Amsterdam, 2005.

nature, causal coherence, internal consistency and descriptive nature, for example. A definition that includes most of the characteristics proposed by others is:

> Scenarios are consistent and coherent descriptions of alternative hypothetical futures that reflect different perspectives on past, present, and future developments, which can serve as a basis for action.

Scenario development emerged in decision-making contexts following the Second World War in fields such as US military strategic planning with the RAND Corporation, and in French spatial planning at DATAR. In the 1960s, General Electric and Royal Dutch Shell introduced scenario techniques in their corporate planning procedures. In the 1970s, scenarios were used in speculating about socio-economic and environmental futures. The 1972 Club of Rome report *The Limits to Growth* is perhaps the most renowned and somewhat controversial example of such a study in the public domain. Today, scenario studies are conducted in a range of contexts, from small and middle enterprises (SMEs), to regional and national foresight studies such as the UK foresight programme, to environmental assessments for public policy such as the United Nations Environmental Programme's Global Environmental Outlook and the outlooks of the RIVM Netherlands Institute of Public Health and the Environment.

An indication of the variety of contemporary scenario practice is its wide application: multinationals, local governments and such temporary bodies as national foresight programmes, for example. A limited number of private organisations such as Shell and DaimlerChrysler have institutionalised the use of scenarios. However, they are developed and applied on an *ad-hoc* basis by many organisations including those in short-term oriented markets, such as the telecom companies KPN, Ericsson, and Vodafone. Scenario development is not common with SMEs, although two documented examples are the mail-order company Smith & Hawken [5] and Flight Directors, a broker between airlines and holiday companies [6]. Another form of scenario work developed in the last 15 years through inter-company co-operation, facilitated by organisations such as GBN and the World Business Council for Sustainable Development (WBCSD).

3. 3 Typology for Scenarios

Critical reflection on current practice is useful given the diversity of examples it provides and the opportunities it offers. A common framework is necessary in order to evaluate the similarities and differences in contemporary scenario practices in a consistent manner. There are several typologies for scenarios in existence, such as those proposed by Ducot and Lubben [7], Duncan and Wack [8], Godet and Roubelat [3], Postma et al. [9], and Heugens and Van Oosterhout [10].

Each of these put forward fundamental distinctions between scenario types, but because typologies reflect a field's state of play at a fixed point in time, they become outdated as the field they address evolves. This is why Ducot and Lubben's detailed typology of 1980 was not adopted. Another problem is that most typologies do not capture sufficiently the diversity and flexibility in contemporary scenario development. Heugens' and Van Oosterhout's typology, although more recent than Ducot and Lubben's, is less detailed. Another drawback is the limited scope of some typologies. For example, business-oriented classifications such as Duncan's and Wack's do not acknowledge differences between macro-economic and environmental scenarios. Therefore, the existing classifications are a source of inspiration but not detailed enough for an in-depth analysis, nor broad enough to do justice to the variety of today's scenario development approaches.

Consequently, a new typology was developed on the basis of earlier typologies and a comparative review of approximately 100 studies carried out since 1985. The studies were conducted in a variety of organisational contexts, including businesses such as the British Airways and KPMG; 'inter-company' co-

operative efforts such as the Dutch Management Association (NIVE) and the World Business Council for Sustainable Development (WBCSD); governmental organisations such as the Rotterdam port authority; broad based participatory efforts such as those in South Africa and Colombia; and academic settings such as the Intergovernmental Panel on Climate Change (IPCC) and the research institutes of the VISIONS project. The studies covered a variety of topics, including sectoral studies for transport, telecom, and nutrition; country studies and a regional study; and issue-based studies that address gender equality, the labour market, climate change, and leadership.

The typology (Figure 1) proceeds from three macro characteristics comprising central aspects of scenario development. The macro characteristics apply both to sets of scenarios and to individual scenarios. The macro characteristics address the "why?" the "how?" and the "what?" of a scenario study; in other words, the project goal, the process design, and the scenario content. The project goal influences the process design, which, in turn, influences the scenario content.

Figure 1. A Typology of Scenario Characteristics

Macro characteristics		*Micro characteristics*	
A.	Goal: exploration vs pre-policy research	I.	Function: process versus product
		II.	Inclusion of norms: descriptive versus normative
		III.	Subject: systemic or issue-, area-, institution-based
		IV.	Nature of change: evolutionary development, versus abrupt-, or gradual discontinuity
B.	Process design: intuitive vs analytical	I.	Input: qualitative versus quantitative
		II.	Method: participatory versus model-based
		III.	Group composition: inclusive versus exclusive
C.	Scenario content: complex vs simple	I.	Temporal nature: chain versus snapshot
		II.	Factors: heterogeneous versus homogenous
		III.	Interconnection: integrated versus isolated

A rudimentary comparison of scenario analyses might confine itself to the use of the macro characteristics. A more in-depth comparison demands a greater appreciation of detail, which can be gained with the help of ten micro characteristics that are described next. They are categorised according to the macro characteristic to which they are closest associated.

A Goals of Study

The first macro characteristic addresses the scenario study's goal. Since the 1970s, the educational function of scenarios has gained importance in relation to its function as a planning tool of earlier years [1]. Scenarios started to be used more for exploratory than predictive ends as illustrated by Royal Dutch/Shell´s 1972 scenarios, which aimed to draw managers´ attention to the possibility of a transformation in the supply chain for oil production. With the founding of Global Business Network (GBN) in 1987 some

scenario practitioners abandoned the planning aspect of scenario development altogether choosing instead to use scenarios primarily for purposes of the learning and communication.

Policy planning is still a feature in some scenario contexts such as the French 'La Prospective'; which aims to combine the exploratory with the decision-oriented. Nevertheless, the decision-orientation of scenarios has broadened and tends to resemble pre-policy research rather than classical planning. Duncan and Wack [50] describe this evolution as follows:

> Over the years scenario planners have learned not to start with such a narrow focus [as with decision-oriented scenarios] since doing so increases the chances of missing key determinants of future conditions or events. You must first use a wide-angled lens to look at the big picture – afterward you can zoom in on the details.

There are two poles of the spectrum of goals of a scenario study: exploration and pre-policy research. Exploration includes ends such as learning, awareness-raising, the stimulation of creative thinking, and investigating the interaction of societal processes [5; 11; 12]. In an exploratory scenario exercise, the process is often as important as the product. The study ´Which World?: Scenarios for the 21st century´ [13] is one of many examples of an exploratory exercise with its investigation of possible paths to alternative futures.

At the opposite end of the spectrum is the project goal of *pre-policy research*. Here scenarios are used to examine paths to futures that vary according to their desirability. Decision-support scenarios contain value-laden combinations of scenarios described as desirable, optimistic, high-road, or utopic; conventional or middle-of-the-road; and undesirable, pessimistic, low-road, dystopic, or doom scenarios. High- and low-road scenarios were developed in the Scenarios for Scotland study [14; 15; 16], and they are implied in the Mont Fleur [17, 18] and the Destino Colombia scenarios [19]. Contemporary pre-policy research scenarios can propose concrete strategic options for decision-making purposes. Examples are the scenarios developed by AMD [20] and a nutrition company in 2000 [21, 22] [2]. More common today in pre-policy research scenarios is to provide implicit policy recommendations. For example, the most desirable Mont Fleur scenario, the Flight of the Flamingos, describes a South Africa successfully negotiating the post-apartheid transition period, but does so only in general policy terms [17; 18].

In practice, many studies are hybrids that straddle the two poles of exploration and pre-policy research [12]. In a first phase, scenarios are developed in an exploration of certain topics. The resulting scenarios are often too general to function as a basis for decision-making. Therefore new scenarios developed using the broad exploratory basis of the first phase to zoom in on aspects relevant to strategy development. For example, at Royal Dutch Shell, global scenarios are developed on a corporate level [12]. These are then used as input for the development of a second set of scenarios that focus on the strategic issues most relevant to individual Shell operating companies.

A.I Function

The project goal macro characteristic is underpinned by three micro characteristics. A first characteristic addresses the function of the scenario exercise. Functions can be either related to scenario development process or to the product of its output. Process-oriented scenario development has the following functions:

- Learning.

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[2]   We withhold the name of the company in accordance with agreements about confidentiality.

- Communication; and,

- Improving observational skills.

The educational function of a scenario process involves informing people [4] by deciphering the overwhelming and often confusing information of the present [8] and integrating possible future events and developments in consistent pictures of the future. Making sense of the future in this manner involves challenging mental models [23] and prevailing mind-sets [24], learning from the past, and investigating fundamental uncertainties about the future. The educational aspect of scenario development arguably helps to improve participants' intellectual and creative skills [12]. Ultimately, scenarios might serve as a vehicle to instil a consciousness of the future in society [25].

Besides having an educational function, scenarios can also have a communicative function [4; 26]. The process of scenario development provides a language for discussion across disciplinary boundaries. In organisations, it can provide a basis for 'strategic conversations' [12] where perceptions on strategy, opportunities, and threats are discussed on the basis of a shared mental model. Learning through social interaction in a scenario process arguably helps an organisation to improve its perceptive ability whereby it can anticipate difficult times and opportunities [5]. In doing so an organisation might act or react more vigilantly to unexpected events and thus avoid being caught off guard in the future.

Product-oriented scenario studies are more concerned with the nature and quality of the output than with how the output was arrived at. Functions of product-oriented scenarios are:

- Identification of driving forces and signs of emerging trends.

- Policy development; and,

- To test policy.

Scenarios can be used to identify and prioritise the dangers and opportunities behind prominent and emerging events and processes [26]. This function is related to the perceptive skills that are referred to above. The signs of emerging developments are also referred to as weak signals, early warnings, seeds or traces. The prioritisation of events and processes can be an aid in policy development [4; 27]. Furthermore, scenarios might also be a tool for evaluating decisions and testing policy options [4; 27]. By using scenarios to do 'practice runs' of possible future situations, scenarios provide indications of possible effects of decisions.

A.II Norms

A second micro characteristic focuses on the extent to which a scenario is *normative*. The issue of norms and values is contentious since it can be justifiably argued that all scenarios are normative as they consist of interpretations, values, and interests of those involved in a scenario exercise. The typology distinguishes between *descriptive* scenarios that explore possible futures, and *normative* scenarios that are explicitly normative because of their description of preferable futures. Most current scenario studies are descriptive [11]. For example, Royal Dutch Shell's 2001 global scenarios entitled Business Class and Prism are descriptive in their outline of two possible futures that are free from indications of desirability [28]. In contrast, the 'Balanced Growth' scenario in The Netherlands in Triplicate study [29] is normative because the explicit aim of showing that given certain conditions economic growth could go hand in hand with environmental protection.

Whether a scenario looks forwards from a particular present situation or backwards from a particular end point in the future can have a bearing on whether it is normative or not. For instance, the backward-looking 'backcasting' [30] scenario is explicitly normative in its analysis of policy measures and other developments that are needed to reach a particular desirable end point in the future. An example of a backcasting study is the POSSUM project [31] in which sustainable transport targets for the year 2020 are formulated. However, not all backward-looking scenarios are explicitly normative as the descriptions in the literature on anticipatory [7] scenarios demonstrate.

A.III Subject

Scenarios also differ according to the **subject** or problem area that a scenario study addresses. The subject provides focus to a scenario development. The time scale that the scenarios address is one aspect with which focus is determined [11]. However, the perception of time is context dependent. Ten years is considered long term in the fashion industry whereas it is relatively short term for many environmental issues. As a general rule, a long-term scale for a scenario is 25 years or more as was the case with the World Business Council for Sustainable Development's (WBCSD) global scenarios until the year 2050 [32]. A short-term scale is 3 – 10 years as illustrated by the scenarios study of the food and beverage market by a Dutch nutrition company [21; 22]. Due to its context dependency, time is not used as a micro characteristic in its own right. However, time scale is relevant for establishing focus with regards to the *issue,* the geographical *area* and/or the *institution* that the scenarios address.

Issue-based scenarios take societal questions as the subject of study. Examples of issue-based scenario analyses are those on the future of television [33], and on the future of women [34]. Area-based scenarios explore a particular geographical region such as a country, region or a city. Examples of scenarios that address the global scale are the OECD scenarios The World in 2020 [35] and the IPCC scenarios [36]. There are also a large number of scenario analyses that address the national level such as the Japan [37] and Destino Colombia [19] scenarios; and The Netherlands in 2030, a study that developed scenarios of possible spatial planning futures [38]. An example of regional scenarios is the Dutch study Scenarios for agriculture and land-use in Noord Brabant [38][3].
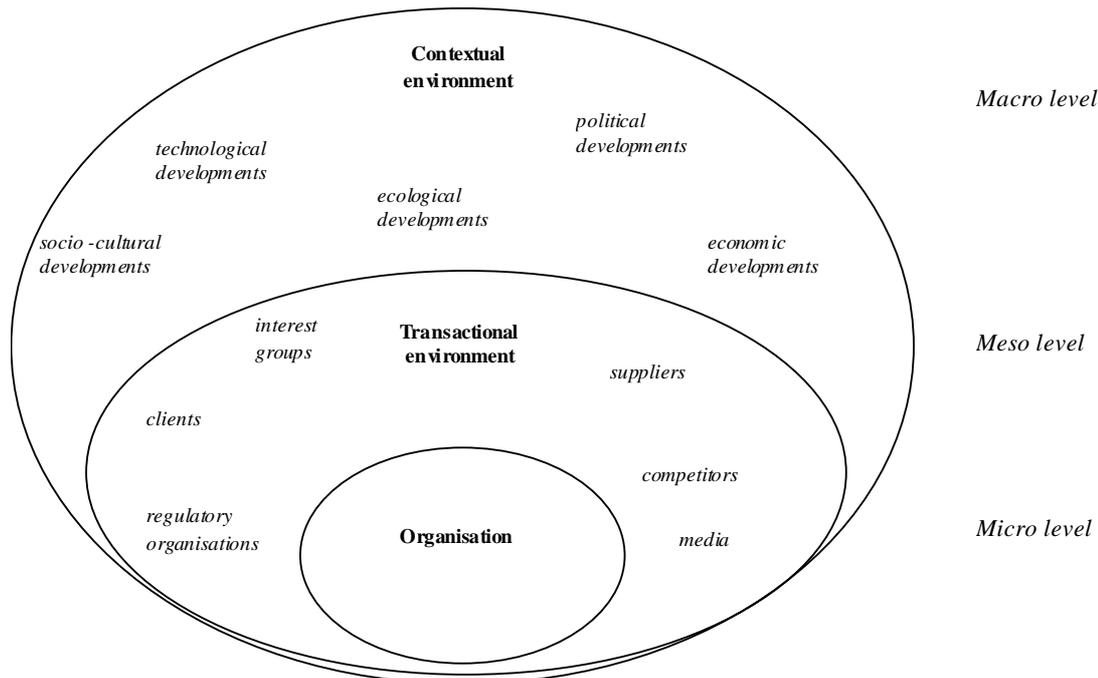
Institution-based scenarios address the spheres of interest of an organisation, group of organisations, or sector. This type of scenario can be broadly sub-divided into so-called macro or contextual scenarios, on the one hand, and focused or transactional scenarios, on the other [12] [4]. The contextual scenario describes the institution's macro-environment: the issues that are not directly influenced by the institution that conducts the scenario development. Contextual analyses can be used to explore unfamiliar or expansive terrain such as Shell's global scenarios, for example. A transactional scenario describes the institution's meso-environment. This type of scenario focuses on the interactions between variables and dynamics within a particular field. The institution-based spheres are illustrated in Figure 2. However, the distinction between the contextual and transactional environments is sometimes vague.

A study can combine issue-based, area-based, and institution-based scenarios to form systemic scenarios. They have a broad outlook that cut across various issues, geographical areas and/or institutions. For example, the VISIONS scenarios [39] are both area-based and issue-based in its exploration of issues such as equity, employment, and consumption in a European context; and the drinks company United Distillers' scenarios of India and South Africa are both institution-based and area-based [1].

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[3]   Noord Brabant is one of the Netherlands' 13 provinces.

[4]   Terms related to macro scenarios are global, archetypal, framework and external scenarios. Terms related to meso scenarios are decision and internal scenarios.

Figure 2: break down of institution-based spheres

A.IV Nature of change

A last factor is the *nature of change* that is to be addressed in the scenarios. One can distinguish between evolutionary developments, on the one hand, and abrupt and gradual discontinuities, on the other. Scenarios that address evolutionary developments reason from the notion of gradual, incremental unfolding of the world system through time and space. Brooks [40] and Morgan [41] argue that most scenario-studies are based on this evolutionary paradigm. They argue that within this paradigm it is difficult, if not impossible, to imagine discontinuity, let alone incorporate it in a scenario study. The 1996 British Airways scenario study [42] is illustrative in this context. In the study it was assumed that the future does not significantly vary from the past. Possible airline regulation and changes in information technology are referred to, but they are not considered to be driving forces that would be powerful enough to cause a significant deviation of current trends.

The instantaneous nature of change is the distinguishing feature of abrupt discontinuities. They give society a jolt, no matter if it is of a temporary and reversible nature. Abrupt discontinuity tends to manifest itself through events but these are usually connected to underlying processes. On the other hand, gradual discontinuity involves a self-reinforcing process of societal transformation where a diverse set of developments converges: socio-cultural, technological, economic, environmental, or political. The change process often involves a shift of paradigm and the introduction of new practices and rules. The distinction between abrupt and gradual discontinuity is not always clear, however, because what constitutes a discontinuity depends on the time scale and the discipline from which it is regarded.

The biotechnology scenarios developed by the World Business Council for Sustainable Development (WBCSD) [43] provide examples of both types of discontinuity. In 'The Domino Effect'-scenario, biotechnology continues to make steady progress until 2010, when an abrupt discontinuity occurs in the form of the deaths of 25 patients who had been receiving gene therapy. The deaths are given enormous mass media attention, and the biotechnology business ultimately collapses. The other two scenarios portray images of a world of gradual discontinuity over a 50-year period. The 'Hare and the Tortoise' scenario describes a societal transformation movement towards traditional farming techniques and holistic health

remedies, and away from biotechnology. The Biotrust-scenario describes a transition to a world where biotechnology is a trusted and integral part of human life with many applications in health care, food production, and life sciences.

B Process Design

The second macro characteristic of scenarios is process design, which addresses the methodological aspects of scenario development. Numerous scenario communities have developed over the years, and each focuses on different types of scenario approaches. For example, the European environmental scenario community, which include such organisations as the Stockholm Environment Institute (SEI), the Austrian-based International Institute for Applied Systems Analysis (IIASA), and the Dutch National Institute of Public Health and the Environment (RIVM), often use computer simulations. Meanwhile, the security and defence sector draws on the RAND Corporation's scenario work among others. The business community strongly relates to the Anglo-American approaches developed by Royal Dutch Shell and GBN, although the French approach of 'la prospective' leans more strongly on computer software than its Anglo-American counterpart. German scenario work is known for its analytical rigour, as demonstrated by the work of DaimlerChrysler's Society and Technology Research Group and Scenario Management International (ScMI).

On the one end of the process design spectrum there is the *intuitive* approach. The intuitive scenario process strongly depends on qualitative knowledge and insights from which scenarios are developed. Such creative techniques as the development of stories or storylines in workshops are typical approaches to intuitive scenario development [5; 12]. The intuitive approach suggests that scenario development is an art form; a viewpoint corroborated by such publication titles as 'The Art of the Long View' [5] and 'The Art of Strategic Conversation' [12]. There are a number of basic steps in an intuitive scenario process:

- Identification of subject or problem area

- Description of relevant factors

- Prioritisation and selection of relevant factors
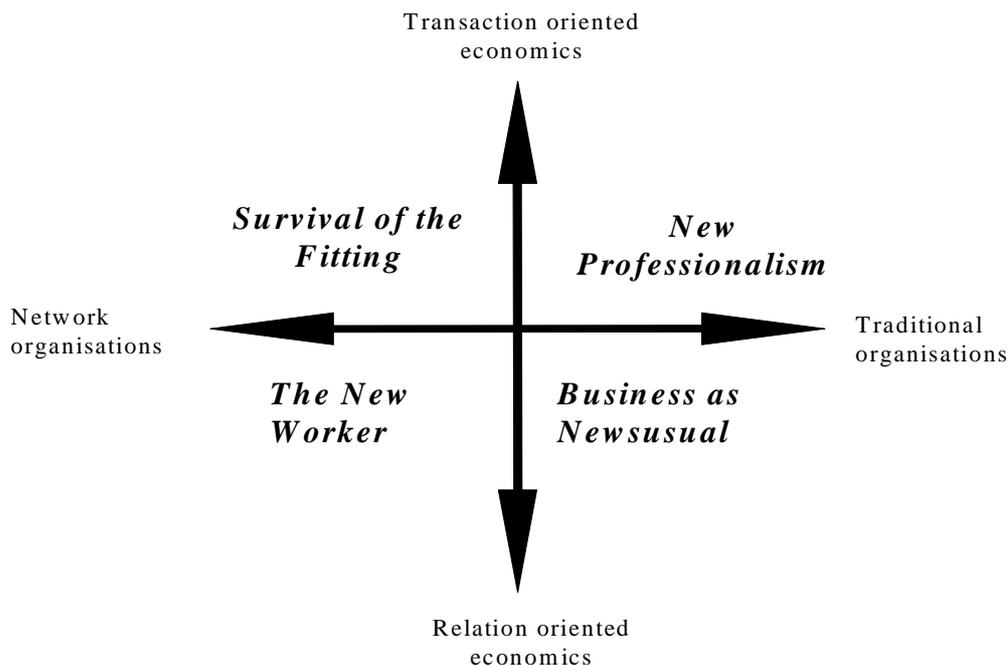
- Creation of scenarios

A subsequent step might be the evaluation of the scenarios with a view to pre-policy research. The above steps are usually performed in one of two manners: deductively or inductively [12]. The deductive manner aims to create a framework early on in the process with which to structure the rest of the scenario exercise. A two dimensional matrix is a common method used in the deductive approach. Such a framework is created by identifying the two factors whose future development is considered the most influential for the topic of concern. Other relevant factors are then arranged around the framework. The matrix can be developed and used in a number of ways.

Van't Klooster [44] distinguishes between four approaches, which she calls the backbone, foundation, scaffolding, and shop window:

- The *backbone approach* reasons from a particular theory of relationships between the factors that are addressed in the scenarios. The other approaches are more the result of pragmatic choice in providing structure to a scenario development process.

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- The *foundation approach* reasons from two factors that are considered particularly important to the future of the issue under concern. They provide the structure throughout the scenario development process as well as the basis of the resulting scenarios.

- The scenarios on the future of the Dutch job market developed by KPMG Ebbinge [45] were developed with the help of such a matrix, as illustrated in Figure 3 [5]. The scenario team used the foundation approach where the dominant factors for the future were identified as economic relationships and organisation types. The two future possibilities of each factor are represented by transaction- and relation-oriented economic relationships, as well as by network and traditional organisations. These form the basis for the development of four scenarios

- In contrast, in the *scaffolding approach*, the structure is abandoned as the scenarios become more developed.

- The *shop window approach* involves imposing a structure at the end of a scenario development process in order to clearly present distinctions between the scenarios.

**Figure 3: The KPMG Ebbinge scenarios**

An inductive approach, on the other hand, does not use such a framework to impose a structure on the scenario process. Instead, scenarios are created in a freer process, whereby coherent stories are developed from associations, inferred causal patterns and other ideas. When inductive approaches are used in workshops the ideas are often represented in a series of post-it notes arranged sequentially to form storylines, as illustrated in Figure 4[6]. The VISIONS [39] scenarios were developed in such a manner,

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5   KPMG Ebbinge is now called Ebbinge & Company.

6   The squares in the figure represent possible future developments.

although some use was made of a so-called 'factor, actor, sector'-framework, which provided an additional structure for thinking about the future.

Within the broad procedural dividing lines, there is a lot of freedom to select and weight steps and techniques differently [46]. Much depends on the goal of the scenario exercise. Scenarios and their development are examples of what are referred to as boundary objects. Horn [46] likens intuitive scenarios and their development to the concept of boundary objects, which is used in the field of Science, Technology and Society to refer to theories, artefacts, concepts, or practices that demonstrate a practical flexibility while maintaining some integrity. Horn refers to Star and Griesemer [47] who describe how certain objects serve as sites to which different social actors attach their own meaning without disrupting that of others. At the same time, the objects maintain a common identity that allows translations and mutual understandings between social groups.
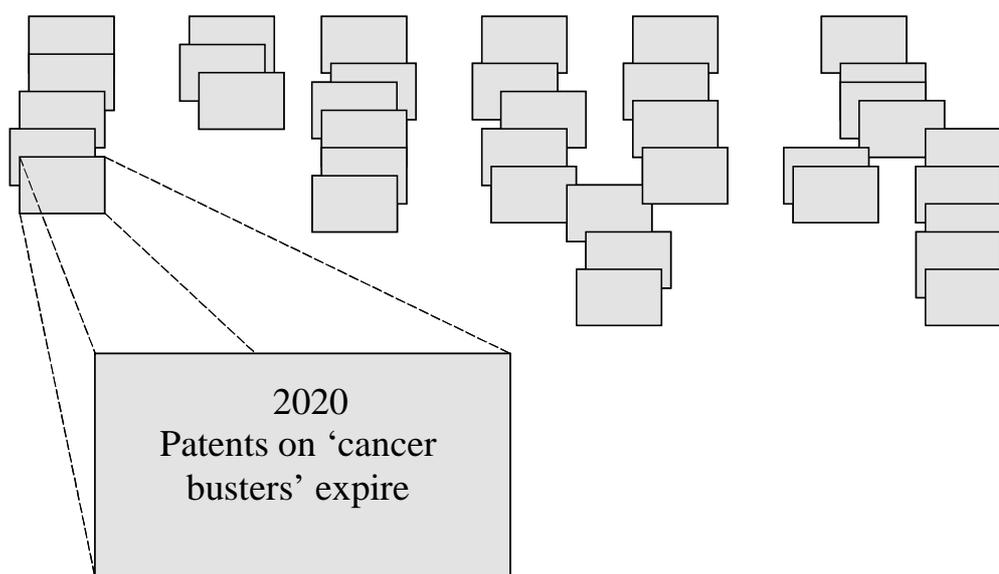
Figure 4: Sequences of post-its form storylines

At the other end of the process design spectrum is the *analytical* approach. Contrary to the intuitive approach, the analytical approach, such as 'la prospective', regards scenario development as an analytical and systematic exercise. Model-based techniques are analytical approaches derived from the earliest scenario development methods involving a quantification of prominent uncertainties. Models can be conceptual as well as arithmetic or computer- based. Computer simulations are more rigorous and less flexible than intuitive approaches. For instance, it is difficult and costly to repeat certain steps taken in 'la prospective' approach, and often relevant causal relationships cannot be addressed in model-based approaches. Examples of computer simulation models used in contemporary scenario work include TARGETS and Threshold 21, which perform integrated assessments of sustainability, and WORLDSCAN, a macro-economic oriented model applied to economic, energy, transport, trade, and environmental policy.[7]

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[7]   TARGETS and WORLDSCAN are acronyms for Tool to Assess Regional and Global Environmental and Health Targets for Sustainability and WORLD model for SCenario ANalysis respectively.

Another type of analytical scenario development is desk research, which involves the development of scenarios on the basis of document analysis or archival research. This process is less formalised and systematic than model-based approaches, but is often just as rigorous. Examples of scenario studies based on desk research include Bobbitt's [48], The Shield of Achilles, Schwartz et al.'s [49] The Long Boom, and McRae's [50] global scenario described in The World in 2020. Desk research does not refer to any one method or scientific tradition. It can vary from an intuitive approach where hunches are pursued to a more structured procedure of data collection and analysis.

It is possible to combine intuitive and analytical approaches. For example, desk research often forms a part of the more extensive intuitive scenario exercises. These exercises use scenario workshops for the generation of creative ideas and desk research by a core scenario team is conducted in order to elaborate and process the workshop ideas. Examples of the studies in which the combination between intuitive processes and desk research is made include the VISIONS process [39] where much time was spent elaborating material from workshops and making it consistent and coherent. There are also examples of scenario studies that attempted to combine intuitive process designs with model-based approaches. For example, the development of the IPCC emissions scenarios [36] involved intuitive techniques supporting a predominantly analytical approach by drafting narratives as a first step in the development of quantified, model-based scenarios before undertaking a consultation process with experts on a global scale.

The opposite approach where the analytical supports the intuitive also occurs as demonstrated by the United Nations Environment Programme's (UNEP) GEO – 3 scenarios [51][8]. The IPCC and UNEP have conducted several model-based environmental scenarios since the early nineties. With every scenario development that the organisations perform more intuitive techniques are used in support of the models. However, the combining of intuitive approaches with model-based techniques is still in an experimental phase.

Intuitive designs are commonly used when pursuing exploratory goals, and analytical designs when undertaking pre-policy research exercises. The NIVE study [52] on the future of leadership is an example of an exploratory exercise conducted in a purely intuitive manner. Similarly, examples of analytical techniques that are used in pre-policy research exercises are the Battelle Institute's BASICS and 'la prospective's' MICMAC approach [1; 53] [9]. Both are probabilistic computer-based approaches used to identify cross-impacts between variables.

B.I Input

Different types of scenario development can be distinguished on the basis of the type of input that is used. The typology distinguishes between qualitative or quantitative [11] data. Qualitative input is appropriate in the analysis of complex situations with high levels of uncertainty and when relevant information cannot be entirely quantified. For example, relevant qualitative information might include opinions about human values and behaviour invariably is used in intuitive process such as in scenario workshops for the WBSCD´s biotechnology scenarios [43]. Quantitative input is used in computer models, which have been developed to explore the fields of energy, technology, macro-economic, and environmental forecasts. Respective examples of the studies based on quantitative input are the scenarios developed by the Netherlands Bureau for Economic Policy Analysis (CPB) [54] and by the IPCC [36].

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[8]   GEO is an acronym for Global Environmental Outlook. GEO-3 is the third in the GEO series of UNEP-outlooks.

[9]   BASICS and MICMAC are acronyms for Battelle Scenario Inputs to Corporate Strategy and Matrice d'Impacts Croisés Multiplication Appliquée à un Classement respectively. In English: Cross-Impact Matrix Multiplication Applied to Classification

Combining qualitative and quantitative input can make a scenario more consistent and robust. A quantitative scenario can be enriched and its communicability enhanced with the help of qualitative information. Likewise, a qualitative scenario can be tested for plausibility through the quantification of information where possible. However, the fusion of quantitative and qualitative data in scenarios remains a methodological challenge.

B.II Methods

The *methods* describe the approaches used in the scenario process. The poles regarding scenario development methods are the *participatory* approach on the one hand, and *model-based* approach on the other. In the former case, ideas for the scenarios are collected in a participatory process. Today, a common approach to participatory scenario development is a workshop involving a variety of stakeholders. Workshop activities are easily adaptable according to the needs that emerge from earlier steps in the scenario development process. Other participatory techniques include focus groups, citizens' juries and envisioning workshops. Participatory approaches are suitable for the generation of creative ideas. However, the ideas often need processing in order to add detail and make them coherent.

The analytical approach often uses conceptual or computational models to examine the possible future interactions between a select set of variables. The computational modelling approach works mainly from quantified data. Model-based process designs usually involve a set of well-defined and predetermined steps. Thus the process is rigid and intolerant towards the iterations that are common in intuitive processes. Conceptual modelling involves structured intellectual procedures such as the cross-impact and morphological analyses of the French 'la prospective', and the techniques applied in Germany by DaimlerChrysler and ScMI. However, the structured approach is an especially strong feature of computational models such as the TARGETS [55], Threshold 21 [56], and WORLDSCAN [54].

Desk research is an analytical approach that is positioned between the participatory and the model-based methods. These studies usually involve the research of a single individual or small team of researchers, often on the basis of literature analysis or archive research. An example of such a desk study is Bobbitt's [48] The Shield of Achilles, which explores the history and possible futures of the 'market state' based on research of over 300 sources on warfare, international relations, and international and constitutional law.

B.III Group composition

Group composition describes the people that are involved in a scenario development process. Group composition is addressed in a number of manners in scenario literature. Schoemaker [24] among others stresses the need for management to be involved in scenario exercises if they are to have an effect on decision-making. Schwartz [5] and Van der Heijden [12] describe the idea of so-called remarkable people, or imaginative individuals whose role in scenario processes is to open other participants' eyes to novel ideas. Civic scenarios studies such as Mont Fleur [17; 18] and Destino Colombia [19] are examples where a high level of variety appears to be a leading principle since efforts were made to have cross sections of South African and Colombian society participate in the scenario workshops.

The typology distinguishes between *inclusive* and *exclusive* groups. Inclusive groups involve a wide range of participants in order to have as many perspectives represented as possible. The VISIONS study is an example of a scenario exercise that aimed to gather such a varied group [39]. The participants that were ultimately involved in the VISIONS European and regional scenario development included representatives from governmental institutions, NGOs, companies, and science as well as citizens and artists from a variety of EU-member states.

Exclusive groups are those where the group variety is limited, often as a result of a conscious decision. Commercial organisations, for example, tend not to draw on outsiders in their scenario studies for fear of informing the competition. To illustrate, an outsider involved in the Telecom study [57] had to sign a confidentiality statement and the outputs of both the Telecom and Nutrition [21; 22] scenario studies were strictly for insiders only.

C Scenario Content

The third and final macro characteristic looks at the content or composition of the developed scenarios. One can distinguish between *complex* and *simple* scenarios. Applied to the context of scenario development, a complex scenario is one that is composed of an intricate web of causally-related, interwoven, and elaborately arranged interplay between a variety of events and processes. In contrast, simple scenarios are more limited in scope. The subject of simple scenarios might focus on a particular niche such as chipmaker AMD's scenarios to anticipate the possible reactions of its competitor Intel to the introduction of a computer chip [20]. Alternatively, simple scenarios may limit themselves to the extrapolation of a limited set of isolated trends such as the European Environment Agency's baseline scenario on the future of Europe's environment [58]. The term 'simple' in the context of scenario development does not indicate poor quality. Indeed, scenario processes are often criticised for their complexity and a simple scenario can be more effective and less demanding in terms of resources than its complex counterpart.

.C.I Temporal nature

Three micro characteristics underpin the scenario content macro characteristic. When considering a scenario's *temporal nature* two types can be distinguished: the developmental or chain variety on the one hand, and the end-state or snapshot, on the other. Chain scenarios such as those developed in the Scenarios Europe 2010 study [59] describe the trajectory or chain of developments to a particular end-state, rather like a film. Snapshot scenarios are like photos. They describe the end-state of a particular path of development and only implicitly address the processes that result in that end-state. Examples of snapshot scenarios are those developed in the NIVE scenarios on leadership in the 21st century [52].

C.II Factors
The second micro characteristic relating to Content is the nature of the *factors* or issues that are described in a scenario. Factors refer to the issues and developments that a scenario might contain of which there are various classifications. One classification distinguishes between socio-cultural, economic, and environmental factors and an institutional dimension is sometimes included as well. Another classification that is referred to as the acronym STEEP differentiates between socio-cultural, technological, economic, ecological, and political developments. The range in this characteristic's dimension is indicated by heterogeneous *and* homogenous sets of factors. The developments in a scenario are heterogeneous when they come from numerous of the above categories. UNEP's GEO-3 scenarios [51] are examples of scenarios that address a heterogeneous set of variables. [10] In contrast, the KPMG scenarios [45] consider only five relatively homogenous factors: employers, employees, 'intermediaries', ICT, and the job market.

C.III Interaction

A final scenario content characteristic is the level of *interaction* between the factors in a scenario. An *integrated* scenario study unifies in an interdisciplinary and transparent manner the action and reaction

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[10]   The variables include demography, economic integration and liberalisation, social inequality, consumer culture, ICT, biotech, environmental degradation, and political decentralisation.

patterns of relevant factors spatial scales [11]. Examples of scenarios with a high level of cross-disciplinary synthesis are the Destino Colombia [19] and Mont Fleur scenarios [17; 18]. The integration of multiple geographical scales was a key objective in recent scenario studies such as VISIONS [39] and the GEO-3 [51]. Both scenario studies integrate global, supranational, and regional information.

The alternative to an integrated scenario is one where the factors are relatively *isolated* from one another such as in the study *Sustained risk: a lasting phenomenon* [60] carried out by the Netherlands Scientific Council for Government Policy (WRR). Different sectors like the water, food and energy sectors have been addressed but the interconnections between them are negligible.

3.4. The Schooling for Tomorrow (SfT) Scenarios

The SfT project allows for the consideration of a wide range of possibilities for the development of scenarios relevant to leadership and policy. A distinctive aspect of SfT is its focus on outcome-based scenarios that describe the main features of a society or an institution in the future. They compare to the earlier-described snapshot scenarios that focus on the end state of a particular path of development to the future. They are aimed at assisting decision makers in making the strategic choices that advance significant educational reform or addressing transformative challenges. In the Schooling for Tomorrow project, several initiatives were developed in the so-called inner core countries: Canada, United Kingdom, The Netherlands, and New Zealand. The initiatives had the OECD scenarios to work with as a basis for thinking about the future, which were often elaborated and added to. The following paragraphs describe the Canadian experiments and position them using the typology.

The Canadian experiment involved two processes in the province of Ontario. The first addressed French language education in a project called Vision 2020. The objective of the project was to establish dialogue in order to develop a shared vision of French language education in Ontario and joint strategies for its implementation. In the context of the typology, the project had both a process and a product-oriented aim. The procedural objective is reflected in the desire to create dialogue. The product comprised the shared vision and the joint strategies. The study was primarily a descriptive exercise, leaving the issue of the desirability of particular futures until the final stages of the project. The subject of education made the study primarily issue-based although the geographical context of Ontario and the schooling system within the province also introduced area and institution-based components to the study. The nature of the change that the initiative aimed to address is difficult to determine. Because of the focus on the outcome of the scenarios less attention is paid to the trajectory that precedes it. However, there is little explicit reference to ruptures or discontinuous developments and there are no indications that the idea of discontinuity played a notable role in the project.

The process design involved a series of meetings with an expert panel, an extended panel, a group of professionals, as well as a group of secondary school pupils. In these meetings the six OECD scenarios were discussed in terms of their implications for the francophone school system and the relevance of scenario thinking in general. The schoolchildren used the scenarios to develop stories of their own and a seventh scenario to complement the original six. In the context of the typology, the process design can be described as participatory involving an inclusive group of participants. Given these design features it is reasonable to assume that primarily qualitative information was used as opposed to quantitative information.

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[11]   According to Schneider, inter-disciplinarity implies an original combination derived from the integration of multidisciplinary ideas or methods that permits explanation or assessment not achievable of non-integrated application of multidisciplinary ideas or tools.

The francophone project did not develop full-fledged scenarios of its own although the schoolchildren's work was a step in that direction. However, the information available is not extensive enough for the children's work to be classified in terms of the typology.

The francophone experiment is summarised using the scenario typology in Table 1.

Table 1: Summary of the Ontario francophone programme.

Function:	Process	▓	▓	Product
Incl. of norms:	Descriptive	▓		Normative
Subject:	Area-/issue-based[12]	▓		Institution-based
Nature of change:	Evolutionary	▓		Discontinuous
Input:	Qualitative	▓		Quantitative
Method:	Participatory	▓		Model-based
Group composit.:	Inclusive	▓		Exclusive
Temporal nature:	Chain			Snapshot
Factors:	Heterogeneous			Homogenous
Interaction:	Integrated			Isolated

The second Canadian initiative was intended as a capacity-building exercise and the promotion of multiple perspectives on the issue of teaching, and teaching as a profession in Ontario. Capacity building takes place during a scenario process and less so on the basis of the output or product of a scenario study. However, some aspects of the study involved the identification of policy actions under the scenarios, which indicates that outputs of the study in terms of content were relevant as well. Nonetheless, in the context of the typology, the function of the experiment was more process than product-oriented. Its aim was to consider the future in terms of equally preferable and equally likely future possibilities. It was therefore not an explicitly normative exercise. In the context of the typology, teaching is considered more an issue than an institution or an area, and therefore it is identified as an issue-based study.

The process was designed as a highly participatory affair. After a little over a year of work on the project, approximately 160 people had taken part in the study groups and workshops. The participant group involved in the experiment was relatively inclusive having been drawn from various constituencies, cultures and position within sectors such as education, labour, health, and communications attended from across Canada, as well as the United States. Given the participatory nature of the experiment and the narrative rather than numerical form of the scenarios, it is reasonable to presume that mostly qualitative information was used for the scenarios.

With regards to content, the six SfT-scenarios were adapted to make them more specific to the Ontario project. Ultimately five revised scenarios were developed. The factors addressed were heterogeneous as they were drawn from a variety of social, technological, economic, and political domains. The interactions between the various factors were not highly integrated and some issues – such as nuclear energy in the 'Refining the Past in 2033' scenario – were described in relative isolation of other societal developments. The Ontario teachers programme summarised using the scenario typology in Table 2.

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[12] Area- and issue based scenarios have been combined here in the interests of symmetry of the diagram. However, their combination can also be justified on the grounds that in nature they are similar when compared to the institution-based scenario. The latter is also a step closer to decision-making than the area- and issue-based scenarios which needs to be converted in order to derive strategic options.

Table 2. Summary of the Ontario teachers programme

	Left			Right
Function:	Process	▣	▣	Product
Incl. of norms:	Descriptive	▣	☐	Normative
Subject:	Area-/issue-based[13]	▣	☐	Institution-based
Nature of change:	Evolutionary	▣	☐	Discontinuous
Input:	Qualitative	▣	☐	Quantitative
Method:	Participatory	▣	☐	Model-based
Group composit.:	Inclusive	▣	☐	Exclusive
Temporal nature:	Chain	☐	▣	Snapshot
Factors:	Heterogeneous	▣	☐	Homogenous
Interaction:	Integrated	☐	▣	Isolated

Some recommendations might be made for future SfT-work on the basis of these experiments. For instance, SfT might benefit from other participatory approaches such as the focus group, citizens' jury, and more extensive use of the expert panel or Delphi study and gaming or role playing. Originally used to test prototypes for consumer goods, the focus group involves asking a small group of people their opinions about particular societal issues and their implications for the future. The Delphi study involves an iterative process where a panel of experts is asked to fill in a questionnaire. The experts are informed of the others' responses at various points in the process and given the opportunity to react and/or adapt their own answers if desirable. The citizens´ jury involves a process of deliberation between randomly selected citizens, and it used as a means for obtaining citizen input for policy decisions. In gaming participants assume the roles of influential players in the area of concern in a scenario study. A recent example of the use of gaming was in a scenario study on the future of scientific research, sponsored by the Dutch Ministries of Education and Economic Affairs [61].

Buttressing the SfT-Scenario Process

The typology demonstrates the diversity of contemporary scenario approaches. It also underscores the flexibility of scenario approaches in terms of the ways and contexts in which they are used, as well as the output that they produce. The flexibility in particular has its pitfalls, however. In recent years scenario development has become a bit of a fad and it is sometimes perceived as a quick-fix remedy for decision makers' ignorance about the future. Masini and Vasquez observe that scenario development has become "a Swiss pocket knife of multiple uses, or a magic wand" that is often waved by inexperienced and unskilled consultants and professionals. Consequently, some scenario studies are no more than cosmetic exercises that add a superficial legitimacy to policy making exercises. The resulting scenarios are hollow diamonds: attractive to look at but lacking in content.

Arguably one contributing factor to the appearance of cosmetic scenarios is tendency of the community of scenario practitioners to bang its own drum. There is evidence of this in several books and articles praising the virtues of scenario development that have been published in the last decade. Potential scenario pitfalls are usually only described in passing or are used to underscore the approach's strengths in overcoming obstacles to its application. The 'what scenarios can do for you'-type of rhetoric often overshadows serious discussion about pitfalls such as those that Schoemaker [62], for example, has outlined.

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13   Area- and issue based scenarios have been combined here in the interests of symmetry of the diagram. However, their combination can also be justified on the grounds that in nature they are similar when compared to the institution-based scenario. The latter is also a step closer to decision-making than the area- and issue-based scenarios, which needs to be converted in order to derive strategic options.

Another contributing factor is a tendency for short-term thinking in organisations. For instance, in governmental organisations the time horizon is often determined by election cycles and share prices are influential in the larger companies. Slaughter states "short-term thinking is one of the most dangerous perceptual defects that we have inherited from the recent past" [63]. He distinguishes between three different levels of operation in future studies: ´pop´, problem-oriented, and critical and epistemological futures studies. Slaughter argues that pop 'problems' correspond to the familiar 'litany' which is continuously reproduced in the global media, such as population, resources, pollution, crime. Problem-oriented futures studies involve the more serious, practical approach of looking at the ways in which societies and organisations respond, or should respond, to the near-term future. Lastly, critical and epistemological futures studies probes beneath surfaces of social life to examine deeper processes of meaning-making, paradigm formation and obscured worldview commitment. He argues that contemporary futures studies are stuck in a pop-oriented mode, although some attention is paid to problem-oriented studies.

3.5 Long-term Thinking and Cultures of Curiosity

In order to probe beneath surfaces of social life to examine deeper processes, it is necessary to investigate the interaction between historical events and processes that have shaped present-day society and their implications for the future. To this end, futures work in OECD might benefit from the work of the 20th century French historian Fernand Braudel (1902-1985) whose classification of time provides a useful heuristic for investigating the interaction of societal events and underlying processes. Braudel [64] criticised fellow historians as well as social scientists for their limited appreciation of time in general and long term developments in particular. Braudel's criticism of the events-focused practice of history is similar to Slaughter's comments regarding the practice of future studies. Both Braudel and Slaughter argue that their respective disciplines should be looking at more deep-seated societal patterns.

Braudel [65] offers a categorisation of time not dissimilar from Slaughter's in its distinction between the superficial and the structural. Braudel's classification distinguishes between what he calls a geographical time or the *longue durée*; a social time; and an individual time or *l'histoire événementielle* [14].

- The *longue durée* refers to fundamental geographic and climatic processes that influence the human race over hundreds and thousands of years. The slow moving, long-term processes and cycles of the *longue durée* exert a dominant and stabilising influence over the other levels thus providing the context in which other developments in society take place.

- The second category involves what Braudel calls social time, which includes socio-economic trends such as the Industrial revolution that span decades or hundreds of years.

- Lastly, Braudel identifies what he refers to as *l'histoire événementielle*, traditional history, or the history of events. This individual time describes events, often diplomatic and political, such as battles and elections that span days, weeks, and a year at most. Braudel considered the history of events to be fleeting and superficial and did not believe that events could influence the more important structures of the *longue durée*. Braudel argued that it is the task of the historian to move beyond the history of events towards a focus on the context of civilisation as a whole. Only then can the meaning of events be fully understood in his opinion.

A similar categorisation for scenario development is proposed by Van der Heijden's iceberg analysis [12], which distinguishes between events, trends and patterns, and systemic structure. The top part of the iceberg is the level of observable events. Immediately below the water surface is the area of the trends and

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[14]   Braudel attributes the term to economist François Simiand.

patterns. At the base of the iceberg is systemic structure that drives the levels above it. The iceberg is a whole; the three levels are thus strongly interconnected.

A classification such as Braudel's is a useful heuristic or 'tool' for the development of meaningful scenarios. Braudel´s classification might help develop a rigorous theory of why specific changes occur and why they lead to particular outcomes, whereby a bridge is developed between policy choices and outcomes.However, a precondition for any scenario development is a genuine interest in the unknowable future and challenging assumptions about it. Although this might appear to be self-evident, the research demonstrated that it is not. Many scenario studies do not venture beyond the boundaries of what is known and assumed, and attempts to challenge those boundaries are discouraged. An example of such a scenario process is described in Textbox 1. Therefore, no matter how good the "toolbox" of approaches compiled, a scenario study will fail if the interest is lacking. It is therefore inadvisable to focus on tools alone but also to invest in nurturing a 'culture of curiosity'.

The rise and fall of a scenario study

The scenario study called 'Questa' was proposed to the management at the Dutch Ministry of Transport in 1995. The case for scenarios successfully played to the general mood at the ministry that the world was changing at a faster pace than ever before. In the proposal it was argued that only a scenario study would provide the ministry with the insights needed to tackle the national transport gridlock that the ministry assumed was looming on the horizon. Besides, many prestigious organisations carried out scenario studies and as part of the ministry's so-called 'impression management' and window dressing, it was deemed wise to develop scenarios as well. Questa started in September 1996 and promised to change the way the organisation approached transport issues.

On the surface it appeared that despite occasional modifications during the study, Questa delivered what it had set out to do. Four scenarios on the domestic transport of passengers, goods and services were developed that depicted plausible paths to 2030. Under the surface, however, it became apparent that at some point the scenario study had become contaminated. Consequently, project team members and sponsors had gradually withdrawn their commitment to Questa or otherwise compromised its successful completion. The scenarios have never been used in any policy development process or other awareness raising exercises and only the study's name is still remembered but not the process that it involved. In retrospect, it is clear that scenario development at the Ministry of Transport was little more than rhetoric.

What went wrong?

First indications suggest that the harmful effects of a stubborn socio-cultural environment are in large part responsible for the scenario study's failure. The so-called theatre model proposed by Erving Goffman sheds some light on the socio-cultural dynamics that were in play during the study. According to the model, socio-cultural contexts in organisations can be divided into three so-called areas of 'social reality'. These areas can be regarded as three sides of a theatre stage: the frontstage, the backstage, and the area under the stage. The frontstage is the area where the public performances are made and formal roles are played out. The backstage is the informal behind-the-scenes area of professional interaction where frontstage activities are prepared and reflected on. The area under the stage is where people feel most secure and confide in one another feelings or opinions that are not expressed in the other stage areas. The current analysis of the socio-cultural dynamics of Questa limits itself to the frontstage and backstage areas.

Applied to the Ministry of Transport, the theatre framework revealed that 'frontstage', the ministry's civil servants proclaimed scenario study to be an important tool for the facilitation of learning in organisations to prepare for an un-certain future. 'Backstage', however, the same people implicitly, and later explicitly, showed a lack of interest in the scenario study. Five socio-cultural aspects explain why the thinking and behaviour of civil servants in the ministry differed between the stage areas:

1. Frontstage, the perception of societal uncertainty was continually proclaimed, thus justifying the development of scenarios. Backstage, however, uncertainty was not an issue and career opportunism was deemed more important. The scenario study was therefore given a low priority;

2. In tune with scenario philosophy, the frontstage attitude was one of an uncontrollable world. Backstage, however, the 'engineering attitude' prevailed in the conviction that man's environment can be entirely crafted and managed according to human needs;

3. The management and other sponsors within the organisation publicly declared their trust in the study. Yet, backstage their trust in the study only went so far as their personal career interests would allow;

4. Management and other sponsors publicly empowered the project team with the task of developing the scenarios as it felt best. Backstage, however, tight reins were kept on the study and the project team was not allowed to stray beyond the established thinking on policy. Besides, team members were uncomfortable with the freedom given to them. They preferred to work under the guidance of the management, and the dominant mode of thinking that it instilled in the organisation;

5. In order to come up with original ideas, a lateral thinking approach was encouraged frontstage to stimulate a flexibility in thinking. Backstage all involved opted for the security of the dominant mode of thought and behaviour at the ministry.

Ideas proposed by Bourdieu and Foucault shed further light on the tensions between frontstage and backstage behaviour during the study. Bourdieu's notions on the accumulation of social capital help to explain why ministry civil servants continually demonstrated that they do the 'right' things and try to meet colleagues' expectations of those with whom they interact regarding tastes, habits, and choice of words. Foucault argues that behaviour according to one's perception of people's expectations is self-reinforcing since it fosters the assumption that others expect this kind of behaviour. Consequently, those who behave according to perceived expectations are slaves of their own thinking as much as they are slaves to others' expectations. This self-reinforcing mechanism was visible in those involved in Questa as well as in other colleagues within the ministry. All behaved like one another's clones and were in effect unable to think and behave in a different manner to the dominant mode at the ministry.

Lesson

Questa demonstrates among other things that a 'frontstage' expression of interest is insufficient if it is not backed up by behaviour that confirms 'backstage' or even 'under-the-stage' commitment. If this commitment to the scenario study is not immediately present then it might help to add extra weight to aspects that:

- Address the fundamental concerns of the sponsors of the analysis and the intended target group insofar as these are not the same, as well as the individual concerns of the project team members;

- Regularly involve those colleagues that play a key role in the area that the scenarios address;

- Raise substantial interest within the organisation for the study and stimulates people to participate in the scenario activities;

- Skilfully deal with points of resistance that accompanies organisational change and creative processes.

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Cultures of curiosity

Cultures of curiosity in scenario processes are environments driven by inquisitiveness and imaginative thinking. Such a culture involves an interaction between epistemological, analytical, procedural, and contextual factors. On an epistemological level, cultures of curiosity reason from a desire to explore the future. The basic assumption is that the future might well be structurally different from the present; few certainties about societal development are presumed thereby challenging the ever pervasive evolutionary paradigm that reasons from gradual, incremental change. In curiosity-driven processes, the interest in discontinuity is also reflected in the vocabulary used. On an analytical level, the ambiguous nature of discontinuity is a source of interest rather than of discomfort. Possible manifestations of future discontinuity are explored from numerous angles. Terms, metaphors and examples denoting change are common; those conveying continuity are rare.

Cultures of curiosity rely on a loosely structured process to ensure inquisitiveness and imaginative thinking involve more than an exchange of ideas and that they produce concrete output. Such a process is designed to stimulate the interplay of influential factors so that the inspiring and are mobilised and the influence of impairing ones quashed. Inspiring factors include group variety, and team work and spirit. On a contextual level, for a culture of curiosity to flourish the constraints are minimal.

Creating, facilitating, and fostering cultures of curiosity would make certain demands on a scenario process design. At an epistemological level, interest in the future would need to be stimulated. From an analytical point of view, those involved in a scenario process should keep an open mind throughout and

avoid a dogmatic adherence to concepts or ideas since such behaviour can act as a self-imposed constraint on the exploratory process.

At a procedural level, it is important to remember that tools can only play a supportive role. If a scenario group is resistant to exploring the future with an open mind then it is unlikely that a tool make the difference between a good and a bad scenario study. At a contextual level, it is important to nurture those environments that foster independent curiosity-driven research but these appear to be diminishing at present. Curiosity-driven research has traditionally been the task of universities. However, today's universities are being pressured to work in a more market-oriented and customer-driven manner and there are fewer opportunities for research that deviates from established paradigms. Nor are cultures of curiosity usually found in contexts of client-based research because the type of output is often constrained by the desires of the client. These cultures are also generally absent in regulatory institutions whose interest is the optimal functioning of the existent system.

3.6 Conclusion

There are many types of scenario approaches in use at the moment ranging from the highly exploratory to the decision-oriented, and intuitive to analytical. The scenarios that they produce demonstrate varying degrees of complexity. In doing so, contemporary scenario development has proved to be a flexible approach that can be shaped to fit different tasks. In the benefits of this flexibility, however, lurks the danger of misuse. Braudel´s classification of time might be a useful tool to avoid cosmetic scenarios. However, it is unlikely that a tool can be effective without a genuine interest in considering the future and being prepared to confront flawed assumptions about it. Therefore, beyond focusing on tools, a scenario team would be wise to make efforts to create cultures of curiosity. In doing so, scenario developers are better equipped to embark on Proust´s voyages of discovery.

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Chapter 4
THE CHALLENGE FOR INTERNATIONAL SCENARIO ANALYSIS IN EDUCATION

By Jean-Michel Saussois

4.1 Canonic Scenarios

The scenario methodology comes from the private sector, mainly from large firms which were dissatisfied with existing long-range planning methods. They sought a softer, less quantitative approach incorporating a greater number of assumptions - even including the insights derived from hunch and instinct. The firms wanted to consider the long run as descriptions of *possible* futures and, from a different perspective, *desirable* futures i.e. those shaped to their own advantage. A basic scenario approach follows specific steps which can be summed up as follows:

- First: delimitation of the "object" to be observed;

- Second step: identification of key *driving* variables, both external and internal;

- Third step: the matching of these variables with a retro-analysis identifying "heavy tendencies" and an analysis of the actual situation to sort out weak signals of change and intended projects of key actors who are parts of the system;

- The fourth step - define strategies of the main actors;

- The fifth step is to propose scenarios…

- …and from these scenarios the final step is to propose action plans.

The first large firm to have developed such a scenario methodology was the worldwide oil company Shell during the 1960s, well before the 1974 oil crisis. Shell was one of the first companies to realize the importance of the *geopolitical* dimension; it wanted to shape its environment instead of simply coping with it. In the 1980s, Shell continued using the scenario methodology; it set up, for example, a socio-political forecast study for Europe which identified (sixth step) two scenarios: one was *"Europe as a Medieval Castle"* resisting liberalism, the other was *"Europe as a Common Market"* with a governance structure loosely coupled with the national levels. The study identified a set of key assumptions which were *probabilized* in order to identify strategies for the way the corporation could reorganize its European operations. Scenario 2, for example, got right into the question of what it is meaningful to do at the *national* level. So, the scenario methodology facilitates anticipation and is a tool of governance mainly designed for taking action.

This methodology is not easy to put into practice. The first step of delimitating the object to be observed is often the most difficult – what is the appropriate focus? The corporate level? The firm? The industrial sector? Once the appropriate level is defined, others difficulties arise. The oil environment can be characterised in terms of the "nested box" or "Russian puppets" problem i.e. inside each "box" there is a smaller one whose dimensions are contained by the larger one. Each one is partly independent of, but constrained by, the shape of those within and outside it so that the choice to focus on one specific box – or level - is not a neutral matter. Establishing key driving forces – what will shape an industry - is not an easy task either. Concerning the oil industry, driving forces can be tax laws, highway expansion, the internal combustion engine, taxes on pollution and so forth.

In sum, large firms have used this methodology as a tool for evaluating the future in terms such as the threats which can destroy or damage an industry. Thirty years ago, the big threat for the American pharmaceutical industry was the manufacture of drugs under generic names by small competitors (which arose in France for the same industry only five years ago). Then the question raised was: how to react to this threat? Is the American pharmaceutical industry prepared for it?

Scenarios as Ideal Types and their Use in Education

The scenario approach is thus to use a set of tools which has helped large firms to cope with their environments. Are we on the same terrain concerning the scenario analysis for education systems? Can we have the same expectations concerning a toolbox? For the Schooling for Tomorrow scenarios, the methodology used for building up the scenario is different from the methodology used by large firms. Nevertheless, some of the problems to be addressed are the same - for example, the education system also can be conceptualized as *a nested box*. The level being addressed is highly relevant, whether it is the school, networks of schools, the school district, the regional education department, the national etc: which one to address is not obvious. Nor does the confusing term "system" help us. It is also necessary to be clear about whether the focus is on the primary or the second school levels because the stakeholders and players involved are not the same in each case.

The Schooling for Tomorrow scenarios can be considered as ideal types in the Weberian sense. The sociologist Max Weber analysed bureaucracy as an ideal type, and identified eight fundamental categories which characterise a configuration or a set of intertwined dimensions of *rational legal authority:* (1) a continuous organization of official functions bound by rules; (2) a specified sphere of competence which involves a unit exercising authority as an administrative organ; (3) the organization of offices follows the principle of hierarchy whereby each lower level is under the control and supervision of the higher one, with a right of appeal and statement of grievance from the lower to the higher; (4) the rules which regulate the conduct of an office may be technical rules and norms - it is thus normally true that only those who have demonstrated an adequate technical training are qualified to be a member of the administration staff and eligible for appointment to an official position. (5) It is a matter of principle that the members of the administration staff should be completely separated from ownership of the means of production; (6) there is an absence of appropriation of their official positions by the incumbents; (7) administrative acts, decisions, and rules are formulated in writing even in cases where oral discussion is the rule; (8) legal authority can be exercised in a wide variety of forms.

Weber's effort to define *pure* bureaucracy is an attempt to capture all the forms of organizations relying on rationality rather than tradition. It illuminates dimensions by which a large private firm or a ministry might be characterised. For instance, they may well be characterised by reliance on expertise (point 2), as is there recognition that rules and regulations bind managers as well as employees (point 4). So "bureaucracy" is not specific to the public sector – it can be found in the private sector to some extent, as with the dimensions 2, 4 or 7; it does not mean "a public system".

The *pure form* is never met in reality. For one thing, members of organisations continually hide behind the rules while favouring their own interests; the condition that they should operate in the organisation's interests is normally only partially met. For another, the ideal form falls short when rapid changes of the organizational tasks are required. But the purity of the design serves to reveal the impurity of the bureaucratic reality – imprecise rules often not observed, areas of autonomy built up in order to resist control procedures, external supports to balance internal pressures. Alternative organizational forms are responses to the limitations of bureaucracies, such as lack of adaptability and the stifling of individual initiatives and spontaneity but they do not usually fundamentally challenge the important dimensions of bureaucracy to do with hierarchy, standardisation and control.

The strength of the scenario approach lies in establishing distance between an intellectual fiction and complex realities as a means to acquire a better understanding of commonalities and differences between "real" organizations (firms, schools, hospitals, churches, non-profit organization) and an intellectual design. As regards bureaucracy, this methodology provides useful insights on the different forms it may take and the degree to which it is present. The Schooling for Tomorrow scenarios can be understood as a kind of *ideal-type methodology* which seeks to describe in words what could happen to the education system under different proposals on a specific dimension – five dimensions were chosen in Schooling for Tomorrow – using the *if ...then* rationale. The scenarios are social constructions devised by individuals able to design from scratch several models built on the same dimensions. They are the product of an *ex post* rationalisation and their fruitfulness lies in their capacity to provoke.

The three main *Schooling for Tomorrow* scenarios with their sub-models are provocative in their capacity to make sense to those for whom they are addressed. At the Poitiers 2003 seminar, the aim, contrary to Shell's, was less to discuss which scenarios were preferred or disliked but to contribute to the identification of analytical measures to help pin down the direction of observable trends towards or away from the different scenarios. The experts and policy makers who participated in the seminar had to select the model they thought best "represented" or described their education system and indicate the *direction* towards which the system *would* evolve (note: "would", not "should"). The probabilization step came with the identification of the direction of change with arrows indicating the move from one scenario to another. For example, the discussion on the *de-schooling model* sought to evaluate the degree of *acceptability* of a market approach - how could market forces enter into the schooling process? What are the key players ready to enter a market? Where are the weak parts of the system which cannot resist market pressures? The discussion helped illuminate the degree to which this market scenario is perceived as an aggression by many in education, especially the teachers' unions.

Second, the answers to such questions as "how near to or far away from each scenario is your school system?" or "with which scenario are current educational policies in your system most and least consistent?" depend on the status of the participants within the education structure. So, there is a variety of meanings depending on the *location* of those who produce a perception within the education structure. Any particular perception is a point of view which comes from a particular point located within the structure: the views of teaching staff are not the same as the views coming from the managers. Hence, the perception of possible future evolution of the scenarios will vary. This point may seem obvious, but it makes difficult the interpretation of the shifts as the seminar participants – advisers, civil servants in central ministries, managers, executives, or professors - were not homogenous in their location within the education structure. The sociological literature tells us that the urge for change is more strongly felt by staff – those in the frontline facing daily the "clients and their needs" - than line managers. The latter feel they are facing a continuously changing environment and do not understand the call for change coming from people not familiar with daily pressures, unexpected situations, uncertainty.

Third, the variety of meaning comes also from the experience of the policy-makers who are being asked to react to the different models. Piaget long ago labelled this approach *constructivist*, saying that the objects that we are familiar with depend on the representations of them we are building upon. "School" as a word or a category only makes sense through experience and acquires a value because it is collectively shared, rather than in a more objective sense. Parents asked about the future of schooling – the 'attitude, expectations, political support' dimension in the SfT scenarios - remember their school days and can "see" the school today coloured by their own personal reactions to school as a good or a bad time. Players develop different, perhaps conflicting interpretations about schooling filtered through their experiences, their own values as former students or as parents observing their children.

The richness of the scenario approach is in its capacity to reveal changing situations and to make explicit hidden variables or implicit assumptions. Take the second set of scenarios, labelled re-schooling. It

underlines an implicit theory about organisational forms which builds on the sociological thesis about emerging new mechanisms for co-ordinating and controlling different sectors of the economy. According to this thesis, organisational structures that were large and centralised and relied on control and communications channels are vanishing because they are ineffective.

The vertically integrated structures, supposedly disappearing, are implicitly the bureaucratic scenario. In line with the thesis they are dinosaurs, ill-adapted to a flexible environment and to respond to a growing variety of unstable demands. These organisations will not survive, so runs the thesis, in the specific setting of a knowledge-based economy. Evidence is lacking with which to evaluate the performance of the emergent new forms of organization underpinning "re-schooling". The inertia of the school education which is described within Scenario or model 1 is taken as shown by the existence of routines but these should not be confused with 'red tape' - organisational theories have explained that routines can provide innovations. One has to clearly distinguish two types of innovation: one is devoted to exploring new frontiers, the other is about continuous efforts for doing, exploiting or renewing existing procedures. Within an organization, these two dimensions of exploration and exploitation are unequal, with exploitation more important than exploration.

4.2 The Methodological Challenge of International Comparisons

There are also methodological difficulties with establishing fruitful international comparisons of the scenarios, such as when the probability is considered of Scenario 1 versus Scenarios 2 or 3 coming about. Even if comparisons are widely developed by international organizations in order to exchange knowledge and best practice (such as PISA), they nevertheless make demanding theoretical and methodological assumptions and raise challenging questions. What is the specific objective, explicit and implicit, of the international comparison? How to deal with the societal dimension? Can there be a "culture-free" approach?

There are different possible approaches to international comparisons:

- Societal facts can be identified which are considered as universals. This approach is implicit in building indicators such as of reading literacy or mathematics achievement levels. These indicators are useful for comparing different types of countries but dramatically reduce complexity. Even such a standard indicator as level of female employment covers a very wide range of factors: in order to compare country A with B, it will probably be important to know what are the access tracks for women to enter the labour market, types of existing services for child-care, the extent of family involvement and support for salaried mothers, tax arrangements in relation to child-care costs, and so forth.

- The second approach is a cultural or anthropological one, and consists of identifying unique characteristics with which to specify a society taken as a whole. This approach focuses on unique features which "sum up" a mode of social relations, such as hierarchy versus contractualisation. This approach facilitates comparison and avoids misleading interpretations of indicators. For example, comparing cultural policies between France and USA through indicators, it is necessary to take account of private foundations enjoying tax expenditures for the USA while public funding is dominant in France.

- The third approach can be labelled as "institutional", and focuses on the national institutions embedded in historical tracks. OECD has analysed national systems of innovation, for instance, and this approach reveals a path dependency specific to each country in analysing the implementation of public policies in innovation across different countries. In shifting from innovation to education, national institutions have their own definition regarding "education"

or "schooling" - each country develops its own answer and invents its proper organizational tool for achieving common goals.

What are the consequences of this variety of approaches for the scenario methodology? The first approach is implicitly "culture-free" and implies an underlying common set of relationships but with the education system itself considered as a "black box". This conception allows the performance of one system to be compared with another one so that the main challenge is to identify appropriate indicators with which to do so. Differential performance may be *explained* by pointing to cultural traits (which are at the heart of Approach 2). Once the "black box" is opened, however, the anthropological dimension comes to the fore meaning that a public policy like education has then to be understood in terms of values and norms. The institutional approach 3 allows for "equi-finality". Why might two countries obtain the same results using different organizational models? To obtain the same goal with different ways and means is to avoid the principle that there is "one-best" way.

4.3 The Socio-technical and Normative Dimensions – a Quadrant-based Tool of Analysis

The challenge ahead with the Schooling for Tomorrow scenarios is to match the *map* and the *territory.* The map is a transcript - to design a scenario is to act as a map-maker where each scenario is a map in itself which builds up a public image of what an education system might be in the future. A map is clearly different from the territory it portrays just as at a restaurant the menu (transcript) is not the same as the food we eat (sometimes indeed there is a disappointing gap between what we expect from the menu and the food we are served). A strength of the scenario methodology is that it can initiate a process of feedback from the users of "maps" to the "map-makers" who designed them whereby the user can help identify inconsistencies and inaccuracies. This may be done with the 'Schooling for Tomorrow' scenarios in the light of their use over the past 3-4 years.

Five dimensions were used as the common basis for constructing the original six scenarios – attitudes and expectations; goals and functions; organisations and structures, the geo-political dimension, and the teaching force. These can be examined in their current formulation first in terms of the *consistency* of the coverage of the dimensions, reading across the different scenarios. Second, the dimensions themselves can be further scrutinised and reorganised, such as into the two grouping of culture-free vs. ideological dimensions.

These five dimensions can be reorganized into two groups in order to distinguish culture-free dimensions and the more value-laden. Two dimensions – the teaching force and organization and structures – can be described as *socio-technical*. Organizations are designed to get some work done; schools are organizations dealing with people who can be considered as "raw material" to be transformed. Thus, people can differ - some learn quickly, some more slowly - so the "raw material" can be unstable and unpredictable or else stable/uniform; technology is a means of transforming raw material into desirable "services"; concerning education, it means that there is a variety of techniques available: some are pre programmed, some are not depending on what it is happening in the class.

The three following dimensions (goals, attitudes and expectation, and the geo-political) are about shaping or responding to *norms* and *values* which are essential elements of education policy. Attitudes and expectations express values in terms of good or bad, desirable or not; norms define principles for action related to the geopolitical dimension. The earlier OECD/CERI *Well-being of Nations* report on social capital usefully summarised this: "schools can foster values for social co-operation as well providing 'meeting places' where various social networks can intersect. To the extent that teachings methods and organisation of learning encourage shared learning and teamwork as well as openness to new ideas and cultural diversity, the more schools can underpin social capital which bridges across different group of the society".

More radical than re-grouping these five dimensions is to work along two axes orthogonal to each other. These two lines map *people- changing organizations* (schools). The west/east line can be labelled as the "supply" line which means that any organization has to provide products or services, raising the question 'What is the meaning of this delivery function for a school considered as a system?' The north/south line can be labelled the "values" line - any organization is goal-seeking so that the question about the *institutionalization of purpose* is a central one. What is the meaning of this institutionalization of purpose for schools considered as a system?

West/East Axis – the Supply Line A system is a recognizable entity into which different type of resources are the inputs and out of which comes some kind of products or services. This line represents what can be labelled as the supply line. The west side defines services delivered within closed *system thinking*, the east side, within *open system thinking*. On the west side, the system is producing organized individual trajectories; on the east side, the service is producing services on a piecemeal basis.

North/South Axis – the Values Line: This line deals with purposes and values. Schools are offering teaching services which are embedded within a society somewhere between the extreme poles. To the North, education is socially oriented and schools are aimed at cohesion, equity and reproduction. The south side individualistically oriented, and schooling increasingly oriented to clients as consumers.

The crossing of these two lines produces four spaces which can be specified in the following way:

1. The north-west quadrant is illustrating *the bureaucratic model*; the coordination of activities comes from the standardisation of procedures which is work out by specific staffs and the dominant values are equality of treatments for the students, the equal accessibility to education services and the affordability of these services for parents.

2. The south-west quadrant is illustrating the model which reflects societal evolution towards more individualism; this move comes from not only from parents but from society itself, less and less comfortable with unified integration and eager to customized answers to specific needs.
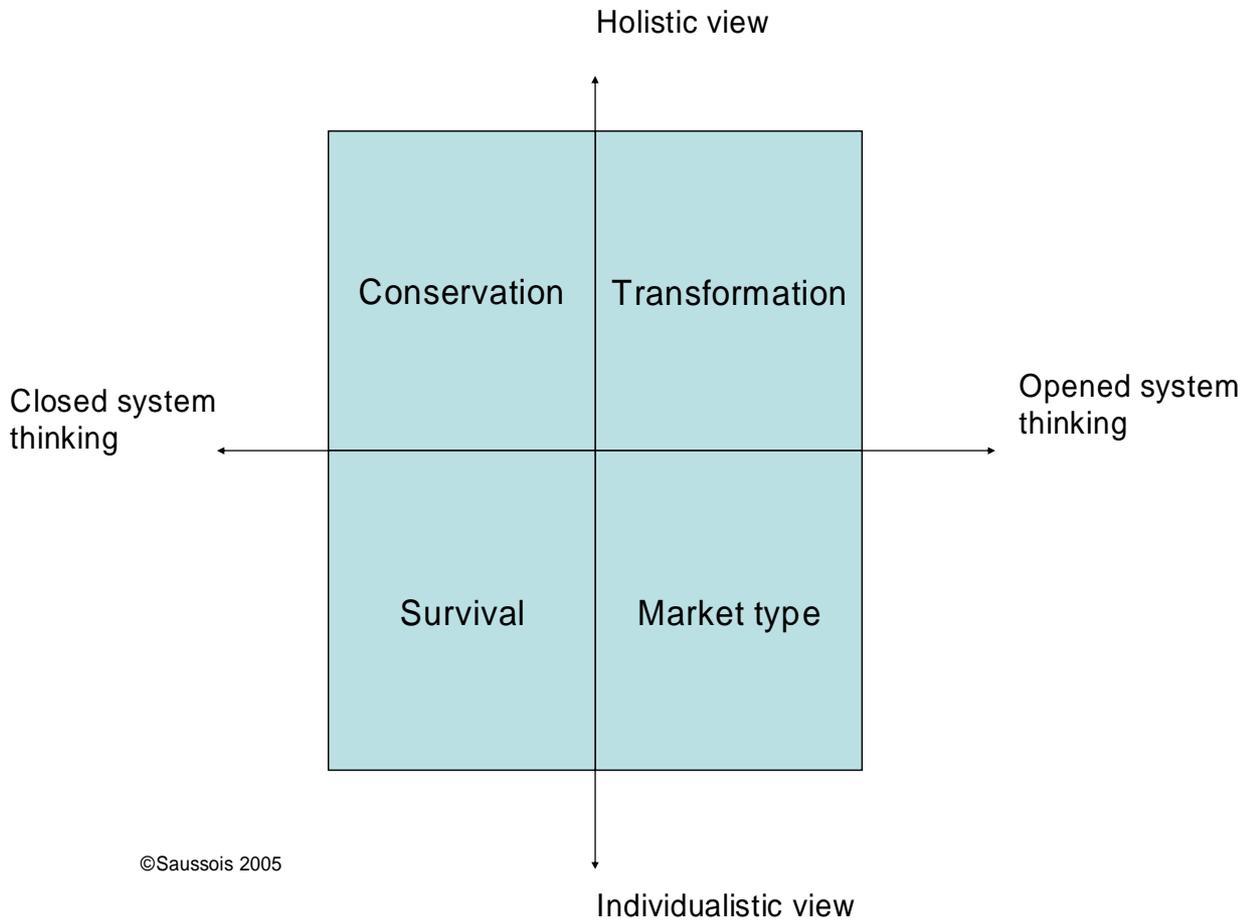
3. The north-east quadrant represents a model which is adapting its throughput in using different pedagogical techniques: for example, converting teachers into coaches, transforming its processes of co-ordination such as through project management involving different disciplines, in diminishing the class rooms hours and in allocating more to the face-to-face relationship or coaching.

4 The south-east quadrant represents a new model which addresses the demand of individualist needs and delivering specific services which are "culture free"; education service becomes a regular service which can be delivered by private or public organizations which facilitates an individual integration with regard employers needs

This map will facilitate the understanding of the dynamics of transformation of the school system by moving around the quadrants horizontally and vertically. Transversal move indicates the scope of change of the throughput: different modes of co-ordination, recruitment of teachers towards different profiles - teachers vs. coaches. The values about national education are maintained. Vertical moves measures the transformation and reorganization of the public image of the schooling system; the public image is changing contradictory through the pressure coming different stakeholders such as parents, service providers, mass media, employers.

These four quadrants and strategic moves can be understood as a toolbox for designing the future of system of education. For policy makers, this mapping effort has different consequences on recruitment of teachers i.e. profile and job assignment, on the building up of curricula, on the understanding of the demand side, on continuing education for the teachers in order to help them coming out of their isolation

even if the teacher likes their autonomy within his classroom For some OECD countries, the legitimacy of schooling as part of national education objective is under question, some other countries have given up with this idea since a long time ago. Each country can locate itself in a specific quadrant and then try to find out the trajectory which makes sense for their near future.

Holistic view

| Conservation | Transformation |

Closed system thinking

Opened system thinking

| Survival | Market type |

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Individualistic view

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CHAPTER 5
FUTURES STUDIES, SCENARIOS, AND THE 'POSSIBILITY-SPACE' APPROACH
BY
RIEL MILLER

5.1   Thinking Rigorously about the Future[15]

People think about the future all the time. In the morning when they wake-up and start planning the day ahead. At the dinner table when they discuss where to go on vacation or which university the children should attend or what will happen to the stock market. Most of these reflections are short-term, a few hours, days or months. Such conversations naturally mix together what people hope for with a wide range of expectations – from the probable to the improbable. Degrees of probability are handled more carefully by professional forecasters trying to predict tomorrow's weather or next year's economic growth. Professionals tend to focus on getting to the highest probability prediction that available data and models can provide. They generally steer away from considering the broader, less predictive question of what might be possible as well as from the more normative question of what is desirable.

But the search for greater predictive accuracy involves certain trade-offs. On the one hand, there is a risk of adopting forecasting methods and models that depend too heavily on what happened in the past. Yesterday's parameters may do a good job of tracking past events but experience shows that this approach consistently misses major inflection points and transformative changes. On the other hand, a preoccupation with what is likely to happen tends to obscure things that may be unlikely but still possible and potentially more desirable. At best the safety of extrapolation ignores what is not predictable; at worst it lulls us into a false sense of having exhausted the available options, thereby narrowing the set of available choices. This, in turn, can impair strategic decision making because it limits the capacity to imagine non-predictable ends and means. The 'possibility-space' approach outlined in this chapter offers one avenue for overcoming such constraints.

What is Futures Studies?

Broad socio-economic changes are propelling the development of futures thinking. Compared to well-established academic disciplines, like economics, Futures Studies (FS) lack a coherent and widely accepted foundation. Most economists generally agree, after some two centuries of heated debate, that economics is the study of the allocation of scarce resources. The analyses of today's orthodox micro, macro, public, short-run, long-run, econometric and historical economists overwhelmingly originate in the root question – how do we allocate scarce resources?

Of course economics was not born a full-grown discipline. Nor at the outset was there much consensus regarding the fundamental analytical problem that connected all of the far-flung issues and theories that now fall under the rubric: mainstream economics. Adam Smith, arguably the founder of

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[15] An earlier version of this paper was given at the OECD/Japanese Seminar on the Future of Universities, Tokyo, December 11-12, 2003, entitled: "The Future of the Tertiary Education Sector: Scenarios for a Learning Society".

economics as a discipline, studied and taught moral philosophy and "belles lettres". Over time, however, economics evolved into an academic discipline driven by the development of markets and industry, the shift to generalized wage labour and the rise of highly complex and diversified systems for allocating resources. It developed into a field that addressed the analytical challenges posed by the increasing intricacy and ever growing variety of actually functioning markets.

In a similar fashion, the emergence of FS is closely linked to the growing complexity, diversity and freedom (or indeterminacy) that characterises today's answers an equally fundamental question: how might we reproduce daily life in the future?[16] FS is being pulled, and to a certain extent helping to propel, an explosion in the plausible - although not necessarily either the probable or desirable - permutations of the ways in which everyday life is reproduced. In terms of how we live our lives, the daily question – what do I do now? – is becoming more open. It is this possibility of a future with greater freedom that calls for the development of more systematic and refined tools for thinking about the future.

What distinguishes FS from other disciplines is its pre-occupation with how we create the future everyday and on this basis to analyse the prospects for change – be it one day or a century from now. This approach to thinking about the future contrasts markedly with more traditional and familiar modes like mystical prophecy, grand ideologically-inspired utopias and mechanistic predictive models. Not that horoscopes, messianic visions or efforts at building the perfect model will disappear. The yearning for predictive certainty responds to other needs. Those who are certain that human history will end with the coming of the messiah or decide what clothes to wear because Jupiter is aligned with Mars are certainly thinking about the future. But they are seeking the opposite of what Future Studies is about. Most of FS focuses on exposing how the future cannot be predicted because it is contingent on choices we make starting now. The aim is to evoke a much wider and deeper set of possible futures, in this sense entirely unlike the predictive traditions that depend very heavily on either continuity or on exogenous events like an apocalypse.

There is one part of Future Studies that *is* interested in short-term prediction, using empirical models. These studies look at situations where the inertia of the immediate past can be reasonably expected to restrict the degree of possible change. Short-run predictive models can be important when they provide insights into the specific variables (forces) that reproduce daily life – or that slice of daily life that interests the forecaster. Done properly, a forecast offers understanding of the causal factors that change daily life, of the way the different variables interact, and of how far the past is a good basis for looking into the future. But when forecasting bumps into the limits of its effective range, it provides a clear signal that efforts at prediction must give way to an exploration of what might be possible, before jumping into assessments of what and why particular outcomes are more or less probable.

Futures Studies and History

Thus the distinctiveness of Future Studies is in providing a rigorous approach to the plausibility of different configurations for the reproduction of daily life in the future. This task parallels those of the historian seeking to understand the key factors that altered (or not) daily life in the past, be it the decisions of kings, the outcome of wars, or the composition of peasant meals, (Hawthorn, 1991, p.8). Neither the historian nor the futurist has direct access to the reality they are analyzing. Both futurists and historians

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[16] Douglass C. North (1999) addressing the question "What are the limits to our understanding of the world around us?", suggests that gaining this understanding depends largely on addressing uncertainty. He proposes three kinds of uncertainty: uncertainty due to insufficient information and knowledge; uncertainty due to the fact that the world is non-ergodic – i.e. is undergoing continuous change; and uncertainty arising from the lack of adequate theories of continuous change.

seek clues in the present and the past in order to substantiate their analyses of why and how life did or might unfold, using methods and theories that take into account multiple layers of complex interaction and causality. Like History, FS is a polyvalent, neutral "social science" as it is a collection of methods, theories and findings that provides an analytical tool for people who hold different beliefs and goals (See, for example: Booth, 2004, Dator, 2002; Godet 2001; Keenan et al, 2003; Ogilvy, 2002; Ringland, 2002; van der Heijden, 2002).

There are, of course, some important contrasts. The work of a futurist may be tested one day by the arrival of tomorrow, while the historian must be forever content with the traces of the past that are more or less buried under the weight of time. Historians can consult the historical record to show definitively that a treaty was signed while futurists must use their imaginations to map what might be the global agreement of tomorrow. But both are map makers – trying to extract the essential features that may explain how life was or will be lived. In many cases historians can track detailed records far into the past with considerable reliability, whereas futurists are more preoccupied with the seeds of tomorrow scattered in the overwhelming detail of the present. However, the challenge of developing convincing analyses of how daily life was or will be reproduced remains the same (Bruland 2001).

FS and history share five key axioms. First, whether looking to the past or the future, as the analysis moves farther away from the present uncertainty increases across a number of dimensions and the accuracy with which we can explain how a particular aspect of daily life is reproduced diminishes. In part this is because the quality of the raw data declines and in part because the number of potential sources or causes that might account for change (or stasis) are, in most circumstances, bound to grow over time.

Thus the second joint axiom is that the scale and pace of change need to be evaluated in both absolute and relative terms. Everyone knows that change from a very low base can be quite small in absolute terms but huge relative to the starting point or when the starting point is already large even a big absolute change may be small in relative terms. A good example of this is the projected population changes for India, which starts from a base of over 1 billion. As a result despite a slower recent growth rate, India's total population in 2050 could be 500 million higher than in 2000 – overtaking China.[17].

The third axiom is that over time, whether looking backwards or forwards, many of the metrics and benchmarks we use to assess change also change. Not so long ago the metric for speed was not miles or kilometres per hour but the speed of a horse measured in furlongs – 1/8 of a mile. When it comes to benchmarks, the old Model T Ford was considered dangerous at over 45 mph. Today most cars are safe at much higher speeds. Judging speed today using the metrics and benchmarks of the equestrian or Model T eras makes no sense.

Fourth, and even trickier to detect and apply, are the more subjective, capacity-related shifts. The relevance and calibration of different measures and perceptions of events in daily life are shaped by a whole range of factors like the degree of literacy, the extent to which values are shared within the community, and the ease of access to information. Even if we are aware of these factors they make comparisons over time difficult. For instance, can we compare the widespread fear of nuclear war in the 1960s to people's fear of genetically modified organisms in the first decade of the 21st century?

There is a fifth axiom to bring the abstract potential for infinite variation down to a manageable range. In order to reduce the "degrees of freedom" in interpreting the past or imagining the future we turn to the

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[17]   The United Nations Estimates World Population Prospects 1950-2050 (The 2002 Revision), February 2003, shows that in the medium variant India's rate of population growth falls from an average of around 2% in the latter half of the 20th Century to under 1% on average for the first half of the 21st Century. However the total growth is close to 500 million.

facts and reasonable assumptions that restrict what is possible. First assumptions have to be made about uncertainly (the first axiom). Aliens could land on Earth tomorrow or we could be hit by an extinction scale meteor and all efforts to imagine future possibilities would be rendered moot and null. Futurists, particularly those interested in policy issues, do not need to devote too much attention to this kind of uncertainty since, though such exogenous events might happen, there is nothing much to say right now about the day after.

As for axioms two, three and four, absolute, relative and qualitative change are all constrained, often in different ways, but nevertheless limited by key attributes of the physical, social and intellectual world. The average height and life-span of the human population may change, even rapidly, but within fairly important limits. Similarly in the realm of social organization, be it economic, political or sociological, we assume that the range of options is relatively limited. Looking at societal change over the next 30 years it is probable that politics will be bounded on the range from despotism to democracy, economics from plan to market and social identity from undifferentiated to differentiated, with the long-run trend in all fields towards the latter ends of the spectrum. The strand of time that most historians and futurists usually consider exhibits a degree of continuity that makes meaningful analysis possible.

However, that the "degrees of freedom" of possible changes are within a manageable range for the purposes of in-depth analysis does not resolve in any way which particular methods or theories historians or futurists should use for such an analysis and here the choices remain very wide, with historians and futurists mostly going their separate ways. Futurists have a well established tool kit for developing scenarios, examining trends and polling expert opinion (see de Jouvenel 2004; Ogilvy 2002). The products of these analyses are used for a variety of purposes - from simply adding to the stock of knowledge to helping make action-oriented strategic decisions. However, as is to be expected in a field that is still young and evolving rapidly, innovations and debates about basic methods and goals still reign.

5.2 Trend- and Preference-Based Scenarios

Scenarios or stories about distinct futures have the potential to overcome some of the pitfalls of predictive approaches. What scenarios lose in terms of calibrated probabilistic accuracy can be made up for by a greater openness to initially unlikely but nevertheless possible outcomes. This is why scenarios have often been used as a tool for strategic thinking, 'strategic' in the sense of choosing where to go. The strategic choices involve the selection of overarching, sometimes long-run, goals. And strategic choices are the ones that make a significant difference in the direction of travel, towards or away from strategic goals. Scenarios are also well suited to helping decision-makers think about institutional change. However, scenarios face a number of drawbacks, in particular how to imagine and then select a few distinctive and pertinent stories about the long-term future from among the infinite number that are possible.

There are two familiar methods for solving the problem of how to choose scenarios. The first takes an initial starting point, for instance population or economic output, and then develops scenarios on the basis of a range of growth rates – low, medium and high – or trends (I call this the "baby bear, mama bear and papa bear" approach, or "Bear" for short.) The second approach focuses more on preferences and implicit expectations in order to sketch scenarios that capture what people consider to be: the most desirable, the least desirable, and the muddling through but most likely (I call this the GBU approach: good, bad and ugly.) Both of these methods have the virtue of selecting stories that are readily accessible since the factors that determine the main characteristics of each scenario are usually quite familiar and easy to grasp. We are well acquainted with trend scenarios for universities, for instance, that are distinguished by differences in enrolment growth rates or scenarios distinguished by the preferences that lead people to consider the "good" scenario to be one where universities are exclusively citadels of a pure search for knowledge, the "bad" scenario to be one where universities are exclusively driven by the commercial imperatives of

funders from the private sector, and a muddling through or "ugly" scenario, usually seen as the most likely, to be one that combines both pure and commercial options.

*The Limitations of Trend- and Preference-based Scenarios*

Exercises based both on trends and values are generally empowering - giving participants a sense of perspective and reminding them of the potential for change (moving beyond current conflicts, zero-sum games, going over or around the wall instead of through it, etc.). They are useful empowerment techniques for promoting leadership. But both suffer from drawbacks that limit the utility of the stories.

The first problem *is the risk of narrowness and lack of imagination*. This is not an absolute characteristic as trends and preferences can be taken "far out", becoming highly imaginative (usually "unrealistic" too). However, these types of stories too often remain circumscribed by initial perceptions of trends and preferences. This may be compounded by the "hubris of the now": "I am alive now and everything is more difficult (or easier), faster (or slower), bigger (or smaller) than in the old days." This view fails to put trends and current views of the present in an historical perspective. Trend-based scenarios also narrow down the range of possibilities when the trends are identified not in terms of theories of change and hypotheses regarding causality but simply on the basis of already available data. Starting with given trends and preferences makes it harder to take into account the compound, multi-dimensional nature of change. Change alters what is possible. A literate population can do things that were very difficult to imagine when the population was illiterate; the options open to a child are not the same as those of an adult – over time not only what a person can do, but what they want to do changes.

The second major limitation *is a lack of analytical precision.* Because the trends and preferences are usually taken as self-evident, even if the effort is made to quantify, categorise and mix the different elements of each story, the theoretical models of change (i.e. of causal inter-action) are most often not well developed. Lacking developed theories of change and charged with an overabundance of descriptive detail, it becomes difficult not only to extract analytically distinguishable stories but more crucially from a policy perspective to justify any particular selection of stories from amongst the vast possible range. Certainly Bear and GBU processes generate stories, in abundance, but such scenarios are usually of limited value for policy making because of a lack of analytical foundations. So, the question becomes, is there a way to develop scenarios that expands the range of imaginable possibilities and that promises to improve analytical clarity in thinking about the future?

5.3 Possibility-Space Scenarios

Partial coverage of the full set of possible futures is inevitable as we cannot imagine every feasible outcome. Figure 1 illustrates the challenge. The largest set consists of what is possible. Within the set of possibilities are all probable futures and some of the desirable ones. Since desirability is in the eye of the beholder this set contains both good and bad scenarios and there are some desirable futures that do not fall within the realm of the possible. The preference-based scenarios are located within the set of desirable/undesirable possibilities while the scenarios based on trend extrapolations may be found across the possible, desirable and impossible futures. As these do not necessarily cover the full range of pertinent possibilities, are there methods to improve our exploration of the strategically-relevant range of possible futures?
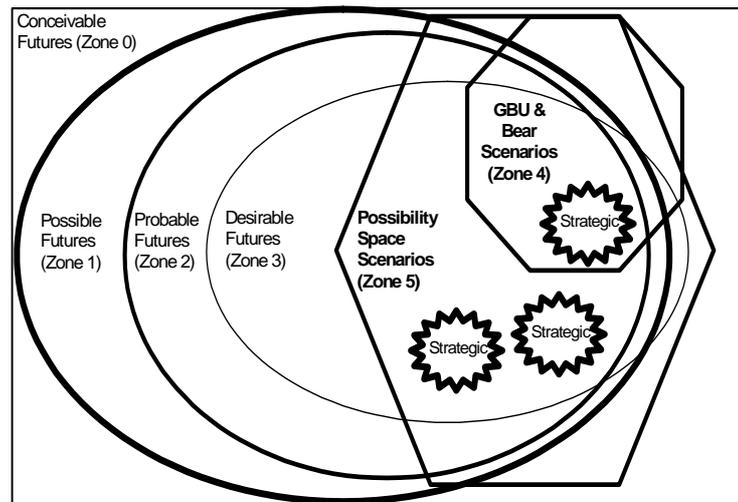
Figure 1: Strategic Scenarios and Possibility Space Futures

The "possibility space" approach elaborated below offers one way of generating a larger set of possible futures for consideration in scenario building through a three-step method. The first step is to determine or define the key attribute (variable A) of the scenario's subject. The second step is to sketch a space, perhaps multidimensional, using the primary attributes of change (a, b, c) in variable A. The third step is to identify distinct scenarios within the possibility space. Figure 2 illustrates this approach with a technological example of the pervasiveness of electricity. The three steps for arriving at this possibility space are as follows:

Step 1: The subject of the scenario is technology pervasiveness (variable A), defined in terms of how widely a particular technology is diffused. When a technology is first invented or commercialised it is possible that it will not be picked up at all. Alternatively it might become very widely diffused, entering all aspects of life – from the workplace to the home.
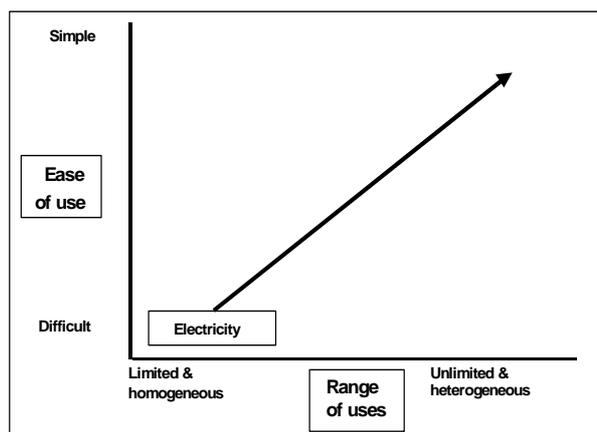
Figure 2: Possibility Space Illustration – Pervasiveness of Electricity

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Step 2: Two of the key attributes of technology's pervasiveness are a) how easy it is to use, and b) to how many uses it can be put. As electricity becomes easier to use and is applied to more different uses, it moves from the lower left quadrant of the possibility space to the upper right.

Step 3: Different scenarios can be developed by considering different points in the possibility space. We already know what has happened to electricity but we do not know what is going to happen to many more recent technological breakthroughs. Will information technology, for instance, really succeed in becoming as easy to use and ambient as electricity?

This illustration shows how the possibility space method opens up a wider set of possibilities for constructing scenarios. The possibility space creates an alternative range of options from which to construct strategic scenarios, by exploring the future more independently of initial views regarding probability and desirability. The task is still one of imagining the future – projecting forward into time. Possibility spaces make it easier to be imaginative, systematic and explicit about the hypothetical "what if".[18]

Extracting Scenarios from Possibilities – A Functionalist Approach

Having enlarged the set of available possible futures for consideration when developing scenarios, the next challenge is to select particular scenarios from the vast space of possibilities. There are still the trend and preference approaches that could be applied immediately to the broader set of possibilities, as the basis for selecting from within the larger possibility space, either by taking the starting point and rates of change as givens or by imposing a specific set of values for differentiating end-points. Or, we may put off consideration of probabilities and preferences and continue for one more step with the neutrality of the possibility space methodology by focusing on the functions and/or organisational attributes of the scenarios' subject. Continuing with the example of electricity, imagine it as a technology that has not yet traced its path across time (see a discussion of counter-factuals in Booth, 2005). In the example used here there are three hypothetical functions and two basic organisational patterns that can be used to develop scenarios as per Table 1. The three imaginary functions of electrical power are as: i) weapon/tool of war; ii) local replacement for steam and water power in factories; and iii) autonomous power source for all kinds of consumer products. The two organisational attributes are centralised and decentralised generation of electrical power. This imaginary "what-if" of the future of electricity generates six scenarios.

Table 1: Organisation and Function Scenarios for "What-if" Electricity Use Scenarios

	Organisation	
Function	Centralised Generation	Decentralised Generation
Weapon	Scenario 1	Scenario 2
Industrial Power	Scenario 3	Scenario 4
Consumer Power	Scenario 5	Scenario 6

Figure 3 shows the six scenarios mapped in a very approximate way onto the possibility space already depicted by Figure 2. This step underscores the contingency or dependency of the scenario's subject – the

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[18] Modelling can help analyse which variables matter and, once the possibilities have been rigorously explored, modelling can be an important tool for deepening the analysis of the factors that might influence rates and directions of change (for instance see the "radar chart" in Miller and Bentley: 21 which points the way towards quantifying a possibility space scenario for the learning society).

pervasiveness of electricity (variable A) – on changes in the underlying attributes of change (ease-of-use (a) and range of uses (b)), that are then used to locate particular scenarios within the possibility space.
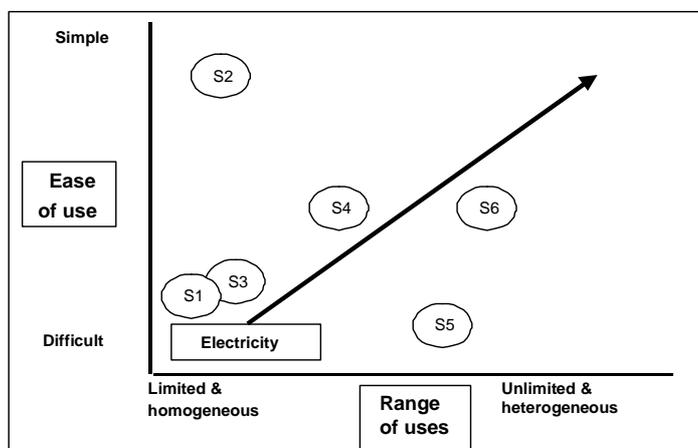
Figure 3: Examples of Functional Technology Scenarios

Figure 3 shows scenarios S2, S4 and S6 mapped higher on the scale of ease-of-use on the grounds that decentralised generation implies a reduction in the technical difficulties of using power generation technologies (wind, solar, hydrogen, etc.). Scenarios S4, S5 and S6 are deemed to exhibit a wider range of uses since as a decentralised tool for industry (S4) and a general tool for consumers (S5, S6), electricity is bound to be used in many different ways. In S1, where electricity is held exclusively by the military as a specialised weapon dependent on the centralised generation of power there would be little need to develop ease-of-use for either generation or applications, while the range of uses is very narrow. Hence S1 is in the lower left of the possibility space. Similarly S3 is closer to the lower left since big industry does its best to limit diffusion.

Electricity did not follow any of these scenarios since it diffused across all three functions and the ease-of-use problems on the application side were largely solved through centralised provision of electric current. Today electricity is located closer to the lower right quadrant, if ease-of-use is considered a composite indicator of both generation and application. Using this electricity pervasiveness possibility space to imagine a different outcome means, for instance, considering what it would take to get to the upper-right quadrant. Such an analysis would focus on a story where universal access and application is combined with simple decentralised power generators. This scenario might be chosen because people value highly universal access and application as well as local control. Or because there is a hypothesis that easy-to-use decentralised generation might allow for innovations in the spatial and temporal organisation of daily life.

Having determined that the scenario in the upper-right corresponds with people's values the next step is to analyse the attributes and conditions for the realisation of such a scenario. This takes us to the final step in the strategic possibility space approach. The analysis now moves to estimating probability on the basis of assessments of how likely or not the choices deemed necessary to get to the goal will be chosen and effectively implemented. Choices that have been defined by pushing the realm of the possible on the basis of clear analytical models. In this way decision making, the core of democracy, and the specific policies that are meant to follow through on democratic choices, come to the forefront.

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PART TWO

FUTURES THINKING IN ACTION – THE EXPERIENCES OF THE "INNER-CORE" SYSTEMS

USING SCENARIOS IN ENGLAND – BUILDING CAPACITY FOR LEADERSHIP[19]

Systems and policy context

The United Kingdom has a devolved national education system, linked to strong, centrally directed target setting. Education policy in England in the 1990s was characterised by a sustained period of school improvement, closely allied to public accountability measures. This central drive for improvement led to the emergence of data rich schools and centrally directed initiatives around teaching and learning, such as the national literacy and numeracy strategies.

The early years of the 21st century have, however, brought a sharper focus, with the improvement movement seeking to explore more radical thinking. Despite significant gains, national and international analyses of student outcomes suggest that education in England is still not serving all pupils well – particularly in the secondary sector. The message seemed clear: if England continued to do what it had always done, it would get what it had always got. Decision makers were therefore moving away from "one-size-fits-all" solutions to give schools more space and authority and seeking themselves ways of allowing this to happen without compromising the standards agenda – still a key policy imperative. Different schools had different challenges and the goal was to understand what policy contexts would enable England to redesign learning so that the needs of the entire population could be met.

Goals of Initiatives

The FutureSight Toolkit grew out of work undertaken by the National College for School Leadership (NCSL) and its partners, the Innovation Unit at the DfES and the think-tank DEMOS, as part of the international Schooling for Tomorrow project. The purpose of the work was to develop practical applications of the ideas around futures thinking which school leaders could use to do more than guess at the future. In parallel with projects in the Netherlands, Canada and New Zealand, the work contributes to the international development of a toolbox.

The project was launched in England in 2002 and offered the potential for policy-makers and educational leaders to step outside the intractable problems of the present at school and system level to see the future of learning in new, challenging and exciting ways. FutureSight uses the concepts and techniques of futures thinking to explore the nature of the choices we face. As we are creating the future today, by the decisions we take now, FutureSight is a way to reveal the expectations and values that shape our current decisions and to begin imagining new options for creating our preferred future. It is a tool for school leaders who

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[19] Report written by:Jane Creasy and Sarah Harris, NCSL10 May 2005

want to make the values and goals that drive decisions more explicit, thereby engaging the school's stakeholders in creating the future together.

These are practical materials with the potential to make an impact on strategic thinking both in schools and more widely across the education system. They challenge school leaders to look over the horizon; understand the direction in which the system is travelling; articulate a desired future; consider the relationship between that preferred future and the current reality; and, along the way, draw out some of the inconsistencies and discontinuities of policy and practice.

The approach has been to focus on school leaders and the development of processes to make use of the material as a vehicle for leadership learning. The focus on school leaders as agents of system change and improvement has been a prevailing political and educational theme for some years. Beyond the responsibility for an individual school, there is increasing recognition of the principal's contribution to system development. In recognising the difficulty and complexity of engaging in sustainable system-wide change Michael Fullan's view of the central importance of integration between the levels of the system particularly resonates with the FutureSight materials: to that extent, FutureSight seeks to equip key agents of change, namely school leaders working collaboratively, to contribute to both policy formulation and enactment and lead our map-making journey towards a preferred future.

Process Design

The FutureSight Toolkit has developed through an iterative process, involving a sequence of seminars. A conceptual framework and shared vocabulary emerged to help group participants understand the relationship between the reality of the current context and the worlds described in the scenarios. Participants led the team into ways of exploring the scenarios, of walking around in these imagined futures and, finally, to designing tools to enable us to use the scenarios more analytically. In reaching this point, we have tried, tested, abandoned and adapted tools and processes.

The first seminar, in December 2002, brought together leaders, chief executives and senior officers from national training and development organisations, alongside interested head teachers. Six months later a group of school leaders from schools facing challenging circumstances[20] worked through the developing toolkit.

These tools were then adapted for a seminar with students from Year 9 and Year 12 through an event hosted by the University of the First Age, a Birmingham based charity promoting innovative learning with young people. In November 2003 school leaders from the Innovation Unit's Leading Edge Partnership schools[21] also met to experience the seminars and contribute further. Such a process has continued with other school and local authority groups since publication. In May 2004, we held a seminar to enable senior policy-makers to consider the implications and potential of this work.

From the workshops, a tangible product, the FutureSight Toolkit was developed. It is a full set of materials for a facilitator and ten participants over a 24 hour seminar. Using the OECD SfT trends and scenarios as source material, the learning framework, tools and processes are designed to have relevance for and be used in, a range of different contexts.

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[20] Schools, often in high poverty communities, deemed as facing circumstances which make the achievement of central performance standards particularly challenging

[21] Secondary schools with a record of success, as measured by current accountability criteria, and given funding to work in partnership with other schools

Scenario Content

England's FutureSight Toolkit

In the *FutureSight* programme, participants are encouraged to consider how children of 2020 will want to learn, and how schools will need to change to meet those needs. The FutureSight process expects participants to draw on their tacit knowledge and experience which is then combined with the trends and scenarios in the *Schooling for Tomorrow* project. The toolkit, which takes the form of a residential seminar over the course of a 24-hour period, comprises four modules or stages that can be completed in about eight to ten hours. The various activities enable participants to uncover the values and assumptions that influence their thinking, and to travel from current reality to preferred futures.

The four modules are, however, designed for sequential use and the progression is explicit. This is because the scenarios have been found to have greater authority when they build on an appreciation of the powerful trends which shape them. In turn, discussion of preferred futures has greater authenticity when this follows the experience of 'walking around' scenarios which seem distant from our own experience.

The four modules are as follows:

1 A Stone Rolling
- Introduction to process, key ideas and vocabulary
- Exploring the trends and checking them against today's reality
- Rolling them forward to 2020

2 Making it Real
- Introduction to scenarios
- Tools to help experience the scenarios from the perspective of pupils, parents and educators and other stake holders

3 Towards a Preferred Future
Tools to analyse desirable and undesirable aspects of scenarios and reach consensus over a shared, preferred future

4 Re-engaging with the Present
Processes and tools to reflect on our current direction of travel and the ways in which we might influence both direction and speed of travel.

The first module is designed to enable participants to engage with what is already known about trends in wider society that will affect the future of schools. The first step is simply to discuss the trends at a general level. Participants are subsequently asked to share their own experiences and perceptions relating to these trends; to describe how they are manifest in different schools; to think about which are having most impact; and to suggest other trends which they see as having an impact in their context.

The second module is based on the six scenarios in *Schooling for Tomorrow*. These scenarios describe how the same trends discussed earlier could combine to produce different futures. A hot-seating exercise drawn from drama provides opportunities for participants to work in groups of three, with each person assuming the role of a student, or a parent/carer, or an adult professional within the context of one of the six scenarios. Having considered what their experience of the given scenario might be like, they then respond, in role, to questions from the rest of the wider group. The purpose of this activity is to enable participants to make sense of and internalise the different scenarios without making judgements about their desirability.

Key ground rules are an agreement to resist talking about the present or the desirability/probability of the scenarios and to accept the challenge of the scenario by careful avoidance of stereotypes.

In *the third module* participants co-construct a 'preferred future' based on their own beliefs and values. They engage in scenario building themselves, using the OECD content as a starting point but encouraged to combine it in new ways in the form of a board game and to write their own content. This module provides a key opportunity to challenge assumptions and to surface values. It also plays a valuable role in developing agreed and explicit meanings, a process which can otherwise be overlooked, as assumptions are made about implicit understanding.

The fourth and final module is designed to enable participants to reflect on the differences between their current reality and their preferred futures and to identify the barriers and enablers that will affect their future trajectory. Again, the mixture of board game and reflective tasks serves to strengthen both creative responses and ensure they relate to existing circumstances and trends. This learning can then be used to inform strategic thinking as participants develop their schools or organisations.

Scenario Usage

The FutureSight Toolkit was officially launched in September 2004 to an audience of over 120 school leaders, local authority officials and colleagues from networked learning communities. The publication of the materials coincided with the launch and to date nearly 1000 packs of the materials have been sold and a further print run has been ordered. The packs contain an evaluation document and the NCSL is currently engaged in a follow up evaluation of those who have purchased the pack.

The NCSL has made the toolkit available to order on its website and is also running facilitation workshops on a regional level to train for the use of the Toolkit, as well as leading seminars of groups wanting to experience the process themselves. These have been taken up by a number of local education authorities, frequently those engaged with policy initiatives with long-term implications.

Examples of FutureSight major 'events' around since the publication of the materials, are shown below

21 September 2004	FutureSight launch event
16 November 2004	FutureSight for Essex LEA
13-14 January 2005	FutureSight South East Affiliated Centre: Facilitators training
28 January 2005	FutureSight for Strategic Planning: school leadership
8-9 February 2005	FutureSight for Cheshire Primary Heads conference
24-25 February 2005	FutureSight Facilitator Training
1-2 March 2005	FutureSight Facilitator Training
8-9 March 2005	FutureSight East Sussex Primary Advisors and Heads
17 March 2005	FutureSight for Kensington and Chelsea Heads
21-24 March 2005	FutureSight Bromley 14-19 partnership
4 April 2005	FutureSight for strategic planning: school leadership
April 2005	FutureSight Barnsley Heads and officers

| 4 May 2005 | National Trainee Heads' Scheme workshop |
| Dates various | FutureSight for students as part of the Community Leadership strategy work |

More than 700 school leaders, LEA officers/adviser, policymakers and international participants in the OECD 'Schooling for Tomorrow' project have been involved in the FutureSight activity since the project began. Given that a good number of these people are in a position to lead workshops with others, using the FutureSight pack, the potential reach is many times this figure.

A number of participants have explained how the FutureSight process has helped them alter their analytical approaches to cope with the ambiguity of a future full of possibilities. In dealing with the process of policy formulation, rather than just implementation, many felt they were able to release creative energies to produce new and exciting ideas .One head teacher of a High School in the North West, particularly remembers the hot-seating technique, a role play in which delegates were questioned by their colleagues.

> *"It made you think outside the box, widening your experience and perception of what the future could hold. Since then, it has helped me think more broadly and at the possibility of a number of solutions, whereas in the past it has been easier to look along a single tried and trusted line."*

Another senior school head from the East of England found the training invaluable in planning for the future of his own school, which is about to undergo a major facility upgrade.

> *"Applying the FutureSight process to our own situation enabled us to shape a vision of where we wanted to go and build according to the concept of an extended school.*
>
> *"Without this sort of thinking we might have got bogged down by existing realities, and could well of ended up simply redesigning a school which was created 30 or 40 years ago."*
>
> *"FutureSight helped us feel more secure about changing things and being radical."*

> A London primary head has also been using her FutureSight experience to good effect. *"It has helped us to be more positive about challenging existing practice and thinking about new solutions to existing and future problems."*
>
> *"Through discussion, we discovered that tracking down and arranging resources was wasting large amounts of teacher's time. From September we are appointing a support assistant with responsibility for organising, arranging and collecting resources for the whole school."*
>
> *"Long term, we are beginning to address issues such as class size, deployment of teaching and specialist support staff, flexible contracts both in terms of hours in a day and weeks in a year."*
>
> *"It is all about challenging what you do – to see if you can do it better."*

> This head has also become an active FutureSight facilitator for other events, as have a number of other heads who were involved in some of the developmental seminars.

Outcomes

In summary, the findings from the experience of working with the materials and the evaluation and other feedback, suggest that the following concepts are key areas which are developed;

- *Living with ambiguity* – challenging the conventional predisposition to treat problems in a linear way and to seek answers.

- *Inhabiting the future* – finding ways of interrogating thinking about possible futures in ways which make them 'real'. A hot-seating tool was developed to enable participants to explore a future scenario and share how it feels from a range of different perspectives. Ground rules were developed to challenge people to live in the future and to adopt naïve approaches to questioning through the idea of a veil of ignorance.

- *Challenging of assumptions* – however open-minded we may regard ourselves, we all have ideas about what the future might be like, often based on our prejudices and preferences. The FutureSight process encourages people to challenge these assumptions and try looking at possible futures in new ways.

- *Making values explicit* – the processes involved, particularly in the third module, where participants examine a preferred future, allow for exploration of values and offer a strong message about the importance of making values explicit when bringing stakeholders together for futures thinking. *"The discussion regarding the semantics of the cards was useful for exposing values – it was a way of getting to the heart of the issue."*

The evaluation responses from those involved in the FutureSight process since publication have been overwhelmingly positive, though it is too early to judge the depth of the impact on strategic activity. We do know, however, that participants register significantly profound learning outcomes from the process.

- *Collaborative learning* – the residential nature of the seminar brings an intensity to the collaborative work which appears to deepen the process by enabling people to move from their 'default' ways of tackling issues about the future. This is particularly true when the seminar participants are not part of an existing team. The experience is further enhanced by the use of a core group of facilitators who have first experienced the process and then work with others through the materials/seminar.

- *Conceptual framework and language* – one of the key areas of learning for participants has been the development of specific language and concepts for talking about futures and thereby deepening futures thinking. This specific language/concept development seems key to releasing imaginations to deal with the ambiguity and possibility mentioned above. *"I found this really useful. The 'veil of ignorance' concept was really effective." (May 04)*

- *Big–picture thinking* – the fact that the scenarios deal with policy-level ideas raises school leaders' sights beyond the everyday and beyond preoccupations with implementation, to provide space for creating a bigger-picture within which they can make sense of their own work.

  "It is so good to be allowed to think for ourselves, rather than being told what to think and do" (March 05)

Further outcomes

Another outcome has been the further developmental work undertaken by the Innovations Unit, based on the FutureSight materials and processes. In the light of the Personalisation agenda, the unit gathered 30 successful and forward–looking heads together who could work with adapted materials to develop a 'Visualisation' process around personalisation, and then act as advocates and facilitators for others. Working with a design company, with DEMOS, and with NCSL, a seminar process was developed which drew on much of the original FutureSight seminar (including the trends, scenarios and hot-seating) and then made use of specially commissioned pictures and words to stimulate thinking about what a personalised future might look like. This pack has since been produced and marketed, and some regional sessions have taken place. Although smaller than FutureSight, it offers an example of the same approach to a specific policy issue.

Other indicators come from the level of LEA interest and the number of sessions being requested for LEA groups of head teachers. Given developments like Every Child Matters, Building Schools for the Future, as well as personalisation, local authorities and groups of schools are seeking ways of addressing big issues about future shape of provision (for which there are no pre-determined answers) and that FutureSight offers a powerful tool to support such thinking.

The use of the materials with students has also been an outcome from the seminar work. In addition to individual schools developing sessions on the basis of their FutureSight experience, a separate set of student materials has been developed within the Community Leadership programme, in partnership with the University of the First Age, and this has had some widespread use.

All respondents have reported with some feeling on the potential value of the process for enhancing the policy-practice debate. There is a strong indication that the materials provide a scaffold and discipline which challenges preconceived notions and ways of working; sparks imaginative responses to trends which have been derived from rigorous analysis; and legitimises the exploration and interrogation of alternative viewpoints through the use of 'naïve' questions.

Implications for Policy-makers

Given the significant change being enacted in the English system at present, and the opportunities being presented by policy emphasis on, for example, personalisation; workforce remodelling; inclusion and wellbeing for all children; and the physical improvement and development of school buildings, there is a place for those involved in policy to employ a set of tools which help both to discipline and release futures thinking.[22]

One significant issue which is worth addressing here, however, is 'Who should be involved in such policy-related thinking?' At the Toronto 'Schooling for Tomorrow' seminar, in June 2004, Jay Ogilvy cited Seymour Sarrison when discussing educational change. One of the problems, he suggested, was that educational change has frequently foundered because it has addressed 'bits' of the system, whereas it is the

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[22] Further information on these policy issues can be found at:

Personalisation: http://www.standards.dfes.gov.uk/personalisedlearning/ http://www.standards.dfes.gov.uk/innovation-unit/

http://www.ncsl.org.uk/research_and_development/leadership_network/randd-leadership-network-articles.cfm

Workforce remodelling: http://www.remodelling.org/

Inclusion and Wellbeing: http://www.everychildmatters.gov.uk/

New buildings: http://www.number-10.gov.uk/output/Page5801.asp

system itself that needs to change. The implication, therefore, is that to engage in futures thinking at system level, it is necessary to involve a range of different perspectives from the system – to get a full cross-section of views around the table. This view receives some support from Michael Fullan in his recent book, 'Leadership and Sustainability: System Thinkers in Action'[23]. He suggests that if a system is striving for both 'high equity and excellence' then policy and practice have to focus on system improvement. He explores the relationship between individual leadership and system transformation and argues that a dynamic relationship between the two is essential.

The FutureSight toolkit may offer a vehicle for engaging a range of voices amongst leaders and policymakers, to enable thinking on a number of strategic issues and involve the vertical and lateral connections that Fullan suggests are vital for sustainable change.

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[23] Fullan, M. (2004), 'Leadership and Sustainability: System Thinkers in Action', Sage Publications, USA – Corwin Press

CHAPTER 7

FUTURES THINKING IN INNOVATION, SCHOOL ORGANISATION AND LEADERSHIP DEVELOPMENT - EXAMPLES FROM THE NETHERLANDS

Introduction

The Netherlands as an "inner core" system has participated in Schooling for Tomorrow as a "laboratory of change", both using the scenarios and in other activities aimed at enhancing future thinking in education. In this report, we describe the three projects that provided our contribution to *Schooling for Tomorrow*[24]:

- At the *systems* level: the use of multiple-year policy plans by the ministry of education, developed in close cooperation with the schools in each sector of education.

- Development at the *schools* level: the concept of "new learning", developed from the KPC Group, an innovation institute that works on behalf of the Ministry of Education on the development of education.

- Development of school leadership: the Dutch Academy of School Leaders, established with the understanding that school leadership is an indispensable factor for developing education from the bottom up.

1. Developments at the Systems Level - the *Course projects*

New educational governance

Innovation in the national government's relationship to educational institutions is at the centre of most policy projects. New educational governance is characterised by deregulation, a limited setting of frameworks on the part of the national government, greater space given to institutions themselves, incentives for optimum utilisation of the available space, and finally the need for accountability to government and society by the institutions about the choices they make and monitoring of compliance with the established frameworks.

The Course projects

One of the instruments of this innovation is the development of multiple-year policy plans, a *Course*, for each sector of education. A *Course* is a planning document, which outlines the course for a certain sector over the coming years. To enhance future thinking in the field of education, development is a main characteristic of all plans, in close co-operation with school leaders, teachers, students, pupils and their parents, and other public bodies in the neighbourhood of the school. The motto for policy development is "interactive unless…". These *Courses* should provide a vision of the future for the sector in the short term

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[24] In this second phase of *Schooling for Tomorrow* members of the Dutch study team were Harry Gankema, KPC Group (section 2), Jan Heijmans, Dutch Principals Academy (section 3) and Anneke Boot (Ministry of Education, Culture and Science).

(the four years of this cabinet term) and over the longer term (eight to ten years). The new educational governance philosophy is the starting point for this. Government has established clear frameworks and provides incentives to work within them, and has reduced regulation in order to give schools greater room to take their own initiative and responsibility. By 2006, every school will be funded through receipt of a lump sum budget in order to give them greater spending freedom.

The aim is to develop a common vision and policy programme for each sector. These *Courses* were discussed in Parliament and subsequently established by government, indicating for each theme what steps will be taken in the short and long term. The main themes vary by sector; for instance, in primary education, the main themes are education quality and innovation, teaching staff and organisation, and the social role of the school in relation to its surroundings.

Evaluation of the process

The University of Tilburg has examined the process of the different *Courses*. This evaluation, called "Nieuwe polders rond de school" (New polders **??** around the school), has the interactive approach of the ministry at the centre, with three main foci:

- Effects - how did these processes work and how were they perceived by the parties involved?

- Qualities - how to evaluate the perceived advantages and benefits?

- Effects on learning – what lessons can be drawn, given the motto for the future "interactive unless…"?

Interviews have been made with those involved, supplemented with expert meetings to obtain observations, opinions and judgements from all sides - the approach starts by recognising the importance of the participants in the *Courses*.

According to the principles of interactive policy-making, positive effects could be expected on five dimensions:

- enrichment of policies with new approaches;

- broadening the social and managerial basis of support for policies;

- renewal of de-institutionalised relationships;

- internal image and trust - cultural changes;

- external image and trust, such as representation in the media.

The researchers did not find effects of enrichment of policies and there were no eye-openers that could be attributed to the interactive nature of the development. The effects regarding the strength of support turned out to be different in different sectors, with positive effects in primary and secondary education and less positive effects in vocational and higher education. A possible explanation is that these latter two sectors were already familiar with the *Course*-process, while the others were new to it. There was a noticeable tendency towards greater self-confidence and self-appreciation, but a less clear enhancement regarding appreciation of the outside world. The results raise questions about the sustainability of the approach and the influence of different interests on the process.

The evaluation shows solid and consistent progress on the dimension "renewal of relations". New relations are mostly found in the demand (parents and students) and the supply sides (school leaders and teachers), often at the expense of the existing ones with umbrella organisations. This development may be described as "de-institutionalization". It should be noted, however, that the umbrella organisations were looking for other channels through which to exercise their voice - through Parliament, the mass media and the specialized education media. The Ministry has thus both developed new relationships and consulted the institutionalised organisations, thereby taking care of new and old polders **[??]**.

The evaluation expects that in the future the Ministry will attend more to checks and balances in each educational field, with schools themselves interacting with the different stakeholders. The essence of interactive policymaking will be determined in the relation between the primacy of politics and the checks and balances in a horizontal education field. Beneath the modest-looking nature of the shifts involved, the evaluators identified a fundamental change in the style of policy-making and the institutional organisation of education towards a diverse set of powerful checks and balances, and with government in an increasingly remote and supervisory role. In this regard, the Ministry will publish a new vision for governance in education in 2005.

Lessons learnt

The new governance philosophy of clear but limited government frameworks, in combination with institutions that must accounts for their results, produces considerable room for innovation from below. Top-down modernisation will no longer work because it does not address the situation in which professionals work and is inherently too uniform. The development of education is a continual process in which a school community determines, from the bottom up, what changes are preferred for their own organisation in their own environment. Innovation means that schools have the ability to organise their classroom teaching differently, not a new 'grand design' for teaching. It means innovation shaped from and by the schools. The initiative for monitoring and improving the quality of education and for experimenting with modernisation will be expressly left up to them. For instance, the concept of 'new learning', described in the next section, is not a government driven grand design, but a choice open for schools looking for a new way for organising learning.

School leaders will play a decisive role in this. The third section describes how the Dutch School Leaders Academy enhances future thinking with this professional group. We can refer to these developments as *leading edges* in the field of innovation of education that can contribute to the *Schooling for Tomorrow* international knowledge base.

2. Development at the Schools Level: the concept of 'the new learning'

Background

"Education stands at the threshold of a paradigm change" is the firm conviction of many people working in education today. On this view, our educational system has failed. It no longer speaks to young people. It does not teach them the knowledge and skills they must have to participate in today's knowledge-based economy. Scenarios, such as the ones formulated by the OECD, impressively show what the consequences can be of such a paradigm shift. To bring this about, different shifts in the paradigm must occur in various domains: in the area of learning and knowledge; in the area of school organisation; in the realm of the social significance of the educational institution. The question is: what efforts must be made in order to bring about this type of change?

In constructing scenarios, we tend to look primarily to external factors that force education to change its orientation. In the Netherlands, the essence of our education system hardly changed despite the education policies of the past 150 years and the constructive innovative education policies in the last 40 years or so. Over these long periods there have been many external changes in society: the social changes have been very substantial but not those in the education system. ICT has dramatically changed the world since the 1980s while schools, the obvious institutions for dealing with information and communication, are still struggling to identify what significance it has for education and ICT has not forced any process of dramatic change. External factors, it seems, do not change schools.

Nevertheless, in the OECD-scenarios, the assumption is that external factors will influence the system in such a way that it will melt down, re-school or even de-school. The main factor is the changing demand of the students and the growing gap between societal needs and the output of the schooling system.In the Netherlands, we had quite a lot of experience in scenario building in the early 1990s. As a result, we made analyses of the system at a macro level and we reengineered a few schools (i.e. Slash/21, a school developed by KPC Group). Although these schools would fall into the category we describe as re-schooling, it goes further than that. For that, we have to analyze the nature of the need for transfer from scenario II (re-schooling) to scenario III (de-schooling). In addition, we need to analyze the factors that withdraw schools from reinventing themselves and thus factors that force society to de-school the system.

The need for transfer from scenario II to III

The basis need for this change is in the nature of how knowledge is defined and the effect this definition has on the organization of schools. The standard model of the school is based on the didactic triangle, in which the subject teacher and the pre-standardized knowledge in the method are simply seen as given elements. Elements given by the quality control system of government and inspectorate, in which is defined what has to be learned. It is the quality system of society that uses the

school as an instrument in building an effective knowledge infrastructure. Employees are products in that infrastructure; students are semi-finished products that have to be enriched in the school towards objective knowledge standards that are expressed in curriculum documents. The system is here described as a value chain.
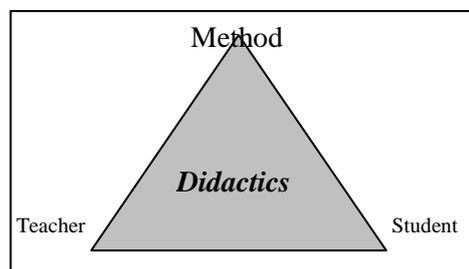
Society is the client, teachers and students are production factors, and the transfer of knowledge is standardized in timeschedules and subject matter. 'Learning' is defined as the consumption of that what has to been learned.

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However, what is the nature of what has to be learned? For that, we have to take a short look at Popper's 'Three Worlds Model'.

Physical world (I)	Psychological world (II)	Formal world (III)
The physical reality surrounding us	The meaning and relations in the physical world as experienced by the individual, mostly implicit	Facts about world I and causal relations between these facts as they are made explicit by men
	Learning Studying Codifying, reducing reality to facts and meaning	
Real world in which one has to act	**EXPERIENCE, COMPETENCIES, TACIT AND EXPLICIT KNOWLEDGE. HAS TO BE DEVELOPED BY EVERY INDIVIDUAL HIMSELF / HERSELF.**	Explicit knowledge. Can be defined in curriculum documents. Can be consumed in school.

Learning starts from the moment a child is born and is confronted with the world around him or her. It builds implicit and tacit models of the meaning as it is experienced. A child of six years old uses the grammar of its mother tongue perfectly without knowing the rules. Learning is on the edge of world I and world II. Learning can be defined as 'that what arises on the edge of knowing and not knowing'. It is a neurological definition. In school, the student is prepared for world I by confronting him with world III.

We cannot use the word 'learning' for this process, because it is totally different from learning on the edge of knowing and not knowing. The student has to look through the eye of the author, has to study the explicit conclusions of someone else and recode it to something that can be integrated into his world II knowledge. World III knowledge is fundamentally not suited for implicit knowledge structures that we need in world II to act in world I. The more complex world I becomes, and thus the more complex world III becomes, the bigger the gap will be between the effectiveness of formal learning and informal learning.
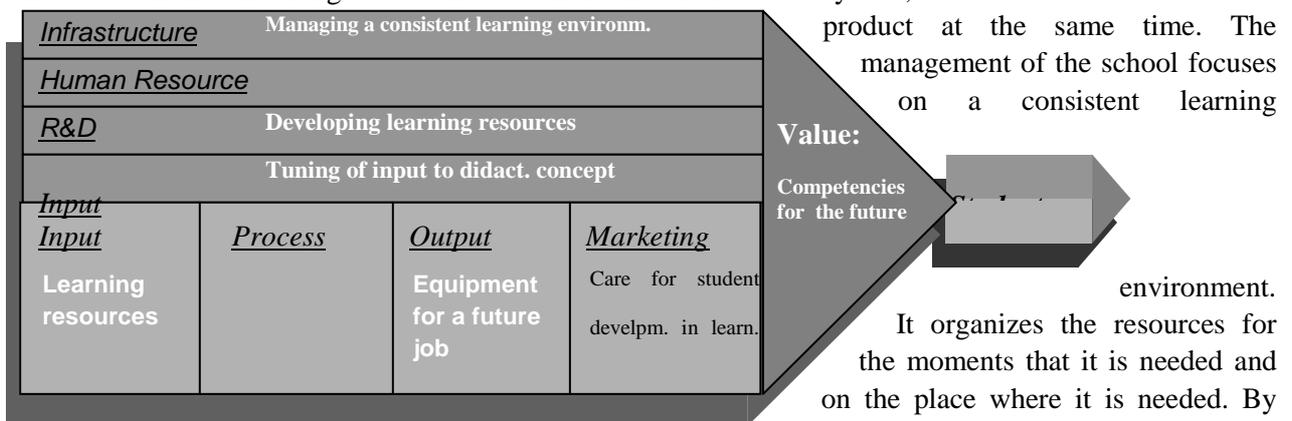
Scenario III is about informal learning, just in time and just enough learning. Learning that rises on the edge of knowing and not knowing, and is about the individual gap between current skills and knowledge, and knowledge and skills needed. For that, the school has to transform from a system that is standardized on production and quality control system that focuses on the standardization of the process of knowledge transfer, towards a system that is in fact a service organization. An organization with front office (client
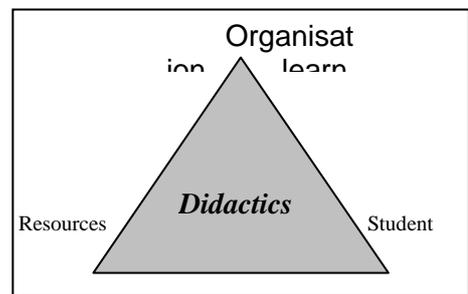
demands), back office (resources and staff functions needed in case it is asked for), quality control on customer satisfaction, and the effectiveness of the customer in the next value chain (job, or higher education). We need a new didactical triangle. Resources are other students, support-staff, including teachers, the internet, animations, all kinds of other media, labour etc.

The learning process is guided or organized by problems that are to be solved and that leads to individual knowledge that is useful for the students future. Knowledge is not defined in the subject matter from world III, but in competencies needed in world II and I or (as in the case of Slash/21) in Gestalts that helps students to understand complex real life problems.

The value chain will change. Now the student is the client of the system, he cannot be a semi-finished product at the same time. The management of the school focuses on a consistent learning

environment. It organizes the resources for the moments that it is needed and on the place where it is needed. By doing that, schools can be much cost-effective and can handle a far broader range of variety in I.Q. and skills in the input. The physical location of the school is not the only place where learning takes place.

This type of school is a more advanced answer to the questions posed in scenario III. In fact, scenario III is far more conservative because it does not react on the knowledge issue as we discussed in this chapter and it gives only room to self confident and talented citizens. In the Netherlands, we saw in the internet-hype economy during the start of this century some forms of scenario III. Young high potentials who shopped by every institution that could provide relevant knowledge, dropouts from the formal system.

In fact they where shopping on highly codified and formal knowledge that was easy to provide by institutions preferably by the internet and distance learning. After the hype, they were the first to lose their job because of the inconsistent and very focused knowledge that was not suited for a changing demand in society. Explicit knowledge lasts only a few years, implicit knowledge lasts a lifetime. The challenge is not de-schooling, but reinventing the school as a service organization. A school that gives room for developing individual knowledge that is relevant for a future society.

Why don't schools change?

Perhaps the wise words of Minzberg are still valid: "Professional organizations are not suited for innovations." Professionals organize there own profession, they will never adapt the organization to strategic changes that are necessary because of fundamental changes in their customers demands. Professional organizations cannot be strategic at all, as long as the professionals are the strategic apex within the system. Democracy, conviction, and the temptation of professionals are the rules of the strategic decision-making processes. Rules that makes professional strategies middle of the road, look alike, self oriented, although professionals always will say and in fact strongly believe that all they are doing, serves the welfare of the patients, clients, pupils, students.

A school's opportunities for change are directly influenced by the way in which that school is able to bring its own practices up for discussion and to distance itself from the matter-of-course way in which it views its current structure. The same is true for society in its relation to what a school should look like as an institution. To what extent can society distance itself from the current manner in which it wants to achieve social objectives in and through education?

ICT, which has made such an enormous impact on the structure of the global community since the eighties, has become so important primarily because entire fields of business were restructured. In the large sectors (e.g. food distribution, banking, publishing and entertainment), chain leaders surfaced that, owing to their strategic policy and their economic power, they had the capacity to fashion the operations between the suppliers in the sector to their liking. As a result, business processes became organized integrally, better and often radically different throughout the business chain.The shift in education from a production towards a service orientation of the school organization will have tremendous effects of the educational supply chain. It will effect the role (if any) of the publishers, of the teachers education, of the quality system. It asks for strategic leadership education has no experience with. It cannot be organized within the scope of a professional organization.

In the Netherlands, government gives way to a new development that is related to what is described in the OECD scenarios. It is called 'educational re-engineering'. Its aim is to develop schools that translate the consequences of the paradigm-shift into a completely new school organization and curriculum and knowledge concept. Government cannot prescribe this development because that would be contradictory to the concept of the school as a strategic organization and the manager as a strategic and inspirational leader

who takes responsibility in the leadership toward the business chain of education. We have analyzed that the paradigm shift should lead to schools as strategic service-organizations with responsibility for the design of curriculum inside or outside the school building. To reach that, school managers needs room, no restrictions. Moreover, schools need strategic and inspirational managers. To help schools in the process of reengineering, we have two products as a tool.

The first one is the training of teachers in the way authentic learning takes place in a non-school environment on subjects that are curriculum related. In the first stage, we explore this kind of learning and the differences that can be distinguished in this type of learning. In the second stage, we try to define what should be the most logical way of learning for each learning task we have traced in the first stage. In that stage, it is forbidden to the course members to use the word 'teacher' or to involve teacher-driven learning environments into their thinking. It helps to clarify the mechanism of the production organization they are used to, and to understand how a service organization meets the needs of authentic learning. Clarification is the first key to change if change is about crossing the border of a paradigm. The second one is training of management that is skilled on the demands of the new organization. The next chapter of this Dutch contribution is about school leadership and management development programmes.

At this moment, there are lots of 're-engineered' schools in the Netherlands. We are studying now the nature of informal knowledge and the negative impact language has had on the understanding of our world. This study is connected to recent results on brain studies. And at the end, we will again translate the results to improve our thinking about curricula and learning organizations.

3. Development of school leadership: visionary leadership and futures thinking

Background

The Dutch Principals Academy (DPA) joined the Dutch Schooling for Tomorrow delegation just recently in 2004. The DPA is an independent non-governmental body for leaders in primary education. The DPA stimulates and guards professional quality and expertise of management in primary education.

The five main assignments of the DPA are:

- - To develop and maintain a professional standard;

- - To keep a register of competent leaders in primary education;

- - To accredit and certify the offers in professionalisation;

- - To develop the starter qualifications of the profession;

- - To establish a Dutch Centre for Leadership in Schools.

In contribution to the *Schooling for Tomorrow* project, the DPA contributes a scientific article on the Delphi method we used to develop our professional standard. A Delphi-method is a scientific method, which structures the communication process of large groups. It also enables participants to take notice of the ideas and visions of others, so that they are able to solve a complex problem effectively in several rounds of discussion. Delphi methods can also be used to organise large-scale dialogue about futures thinking. In this report, we will focus on DPA activities in phase 2 of the *Schooling for Tomorrow* project.

Aims

In phase 2, the DPA focuses on the core competence of visionary leadership of school leaders in primary education. In our research, we found out that having a vision is crucial for heads but:

- Head teachers rarely have a strong own vision on good education, good schools and good leadership in the future. Their visions are heavily coloured by national policy and expertise from consultants and advisors.
- Visionary leadership is short-term thinking.
- Their visions have a limited scope and are strongly internally focused and local orientated.

Our aims for phase 2 are:
- To promote long term visionary leadership by futures thinking
  - in initial training of leaders in primary education
  - in relation to school improvement projects
  - in creating sustainable visions for schools in daily practice.

- To develop, try out and evaluate instruments, methods and other working materials that challenges head teachers to develop own visions and appeal to their role as leaders of a moral enterprise and their professional responsibility to co-create a desirable future.

- To gain images and evidence of preferred and disliked futures from various groups of leaders in primary education as input for phase 3.

3.3 Design and methodology

The original six OECD scenarios were not so useful for our purpose, because they outlined possible school varieties in the future. We wanted leaders in primary education to create their own images. Therefore, we used the five scenarios from the Ontario *'Teaching as a profession'* project as a basis. We used their background tables and combined them with the outcomes of the pre-forward study from the ministry of Education, Culture and Science.

This resulted in five scenarios:
- In a united Europe (In een Verenigd Europa)
- In a downward spiral (In een neerwaarse spiral)
- For community and environmental care (Voor gemeenschap en milieu)
- In a global market economy (In een mondiale markteconomie)
- In a high-tech networking society (In een high-tech netwerksamenleving).

To create images of possible future schools in these scenarios and to be able to analyse results in a systematic way, we used a framework with five main school design dimensions:

- Why should you learn; expectations from education in the future;
- What do you have to learn; contents and curricula in the future;
- Where and how can you learn; learning environments and resources in the future;
- How can we organise learning; leadership and governance in future education;
- How to support learning in the future; the role of parents, local community and society.

Procedures and events

To stimulate creative thinking, we put mixed groups of leaders in primary education in the imaginary worlds of the five scenarios. We used different methods to let them design and evaluate stories and images of future schools for 2 – 15 years old children in 2030. This year, we organised nine one-day events with over 200 participants.

A. Writing sessions (3 sessions – 110 participants)
- With the DPA registration chambers (vice) heads and superintendents), writing short stories as a team of educational designers to describe schools in one of the scenario's;
- With 20 aspiring heads in initial training to describe a school day of a 4 years old, and a 12 years old child in 2030.

B. Walking sessions (3 sessions – 50 participants)
- With mixed group (vice heads and heads of innovative schools), walking in different environments (modern art museum, zoo, historic museum, space centre, etc.), armed with laptop and digital camera, to get impressions and experiences of learning in the future and to make a powerpoint presentation on the five school design dimensions to present and discuss possible futures for an audience.

C. Information processing session (1 session – 18 participants)
- With a mixed group of 18 aspiring superintendents in their initial training phase in a computer room with internet access to get impressions and experiences of learning in the future on the internet and make a power-point presentation on the five school design dimensions to present and discuss possible futures for an audience.

D. Evaluation sessions (2 sessions – 35 participants)
- With 17 head teachers of a large federation of schools, who had recently put together their policy and strategy for upcoming years, to assess those plans towards the five scenarios and to experience how 'future proof' they are;
- With 18 head teachers of schools of different denominations (from very severe Protestant Christian signature to public schools), working closely together in an educational region, to discuss what shared opinions they have on preferred or disliked futures.

Output

Data gathering will be completed in June 2005 and in May we start analysing the data[25]. Besides output in different products (scenario's, stories, images, evaluations, presentations, etc.) the analysis should point out a general desirable innovation direction for primary education in The Netherlands for the long term. This will be input for visionary leadership projects in the future and activities in phase 3.

Prelude to the next phase

Next year the DPA has foreseen two streams of activities using the input from phase 2.

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[25] In co-operation with Prof. Dr. M. Vermeulen, general director Ruud de Moor Center (Open University) for professionalizing educational staff, professor in sociology of education and academic director of a masters program on strategic management in education from Tias Bussiness School of Tilburg University.

1. We will confront groups of leading practioners in different education related branches with the desirable innovation direction, and organise dialogue how they can support large scale innovation in this direction with their expertise. We are aiming at leading and innovative:
- School builders and architects
- Authors of learning methods and curriculum developers
- Directors of initial training centers
- Consultants and advisors working in the educational infrastructure
- Staff members of large boards, unions, pressure groups, parent organisations, etc.

2. We will organise experimental more-day residentials for duos of school heads and teachers from innovative schools. We want to train them in using the materials from phase 2 in their schools, to develop an adopted, shared and supported vision on learning and teaching for tomorrow.

CHAPTER 8

NEW ZEALAND – THE SECONDARY FUTURES PROJECT

New Zealand has a national education system. In 2002, the Ministry of Education along with a newly elected government was interested in developing a broad-ranging discussion about what secondary schooling would be like in twenty years. Secondary Futures began after a strategy briefing by the Ministry of Education to the government highlighting the need to work with the schooling sector and the community to generate dialogue about the purpose and direction of secondary schooling. At the same time, there was a desire to focus the professional debate around the issues of quality teaching, student outcomes, and diversity issues. There was general consensus among education sector stakeholders that thinking about the future should be done in a structured approach and that this would be helped through participation in the OECD project. The timescale for the New Zealand's project covers a period of twenty years.

Secondary Futures helps New Zealanders create a vision for secondary education by:

- *Creating space* to contemplate the future

- *Providing tools* to resource thinking about the future

- *Sharing trends* for the future direction of New Zealand society

- *Sharing information* about possibilities to make more students more successful

- *Eliciting people's preferences* in relation to the future of the New Zealand education system

- *Supporting change* by taking information out to others.

Process design

The *Secondary Futures Project* was conceived by the New Zealand Ministry of Education and various sector stakeholders. New Zealand took a unique approach to group composition by appointing four *guardians* with high profiles in the fields of tertiary and Mäori education, business innovation, education leadership, and sporting achievement whose role was to protect the integrity and autonomy of the process. They were responsible for creating a space for dialogue by protecting the process from short-term policy and industry debates, a role foreseen to develop as the guardians use their national profile to create networks and to install confidence in the project. They were aided by a small *secretariat team* as an autonomous group from the Ministry of Education. The secretariat provided the guardians with access to research and information resources and to administrative support. There was also a *touchstone group* comprised mainly of NGOs that functioned as a reference group and a conduit to key education sector organisations.

Participation of culturally and professionally diverse groups has been encouraged and the debate on schooling widened to include new voices and participants. The major challenges include determining the best method of data collection for research and to use to effect change at local, national, and regional levels.

Like the original process that designed the *Schooling for Tomorrow* scenarios, the *Secondary Futures* project has a critical desk-based aspect. The New Zealand government is interested in promoting futures projects in different sectors such as the labour market, immigration, sustainable business, biotechnology, and information and communications technology. The Secondary Futures project is working with these other projects on trends and values through which to analyze the context and opportunities for schooling in the future.

Character Narratives and Preference Matrix

The focus of the Secondary Futures programme was on learners twenty years from now. The New Zealand group viewed the OECD scenarios as an opportunity to "leap into the future" and as a tool for group discussions. The scenarios were modified however, into frameworks that were accessible to New Zealand audiences (see box). The new scenarios used plain language while seeking to be faithful to the originals. Narratives of the various scenarios were developed that helped participants "walk in the shoes" of New Zealanders of the future.

Step 1: Interview with a Citizen from 2025

Futures literacy is promoted through a simulated interview with a citizen from 2025. This activity introduces participants to futures language and approaches and allows them to brainstorm on what the future might look like.

Step 2: Original Scenarios and Role Playing

The New Zealand research group determined the "status quo" scenario was counter-productive to futures thinking by focusing people back to the present when the goal is to free them to imagine, having considered whether leaving this scenario out distorts or invalidates the responses to other scenarios. In the end, four of the OECD Scenarios were adapted into frameworks that included concepts and key components that were interpreted in language that would be more accessible in a New Zealand setting.[26] They were described as: Social Centres, Focused Learning Centres, Networked Learning Society, and Individualised Choices.

A set of five roles or personas, each of whom had a name, is developed - a learner, a learning facilitator/teacher, a parent, an employer, and a community leader/school administrator – and applied to each of the scenario frameworks. Narratives are then developed for each persona that allows participants to experience the future space; within each narrative, details of place, age, ethnicity, and family composition are included.

Secondary Futures Scenarios

Social Centres. Many learning and personal development aims

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26   The 'Status Quo' and 'Meltdown' scenarios were not used for reasons given earlier of wishing to avoid catastrophic futures or those which focus people back to the present.

Focused Learning Centres. High value on information and knowledge

Networked learning society where education is fully incorporated.

Individual choices. A personalised model of learning in which individual choices shape what and how we learn.

Step 3: A Preference Matrix

Workshop participants then use a preference matrix in order to elicit prioritised preferences for each framework and determine a hierarchy of desirable features of schooling options.

Step 4: Dialogue

The final step is an open dialogue about the future of education that draws on the experiential lessons from the previous stages.

Further Developments after the Early Design

In the period since the Toronto conference, New Zealand's Secondary Futures project has made significant progress both with the development of resources for conducting a futures focused conversation on possibilities for education, and with the organisation of information communicated as part of this conversation.

1. Conducting the conversation

Participants

Secondary Futures is charged with having a wide-ranging conversation, bringing in a range of voices, especially those not traditionally heard, into the debate shaping education policy. The Guardians and staff of the project have run workshops and addressed conferences all around New Zealand, predominantly in the education sector, and with youth audiences, as well as engaging with the business and community sector.

A number of workshop formats have been devised, to accommodate participants' needs. The optimum format takes place over a three hour period, and gives participants sufficient time to start exploring preferences for the future of schooling.

Secondary Futures has collected formal written feedback from over 900 participants in workshops, and engaged with hundreds more.

Disengaging from the present

Secondary Futures considered feedback from the Toronto conference around selecting only the re-schooling and de-schooling scenarios from "Schooling for Tomorrow" as the basis for discussion, and omitting the "status quo" scenarios. Pilot workshops held locally confirmed the earlier view that conditions in New Zealand were right for exploring alternatives to the bureaucratic school systems. The motivation

behind the "status quo" scenarios, where "dissatisfaction does not reach the level where it precipitates real change"[27] was largely redundant for the New Zealand context.

A new activity, creating an epitaph for secondary education, has been introduced at the beginning of workshops. Participants are asked, "If secondary education died tomorrow, what would be its epitaph?" This provides a springboard for participants to disengage from today and acknowledge the desirability of exploring new possibilities. Overwhelmingly, epitaphs gathered from those working within the education sector, express negative perceptions of the current system. By reflecting on attitudes towards the current system and sharing these responses, participants are motivated to engage in a wide-ranging exploration of possibilities for the future.

Contemplating the future

As part of the process of creating possibilities for education in the future, workshop participants requested help to first imagine a plausible future. While Secondary Futures is not in the business of predictions, the project has conducted extensive STEEP analysis to ensure that all discussions regarding the future are grounded in plausible and credible trend information. From this scanning, a range of tools has been developed to stimulate thinking about what New Zealand might be like in twenty years.

A series of timeshift card has been created. These identify social, technological, economic, environmental and political snapshots twenty years ago and today – then prompt participants to th ink about how that trend might evolve in twenty years' time (see appendix 1). These are predominantly a visual resource, servicing the project's mandate to bring a range of voices, including youth and a range of ethnic groups and people with low levels of literacy into the debate shaping education policy.

Statistical trends, such as those around New Zealand's changing demographic profile, have been converted into a series of "possible" and "probable" trends cards (see appendix 2). A series of "wildcards" have been created to suggest potential side-swipes that might impact on the future of schooling (see appendix 3). Having considered possibilities for the future of New Zealand society, participants are then invited to consider what a school leaver might need in order to be successful in this world.

Deficiencies of the "frameworks"

Further trialling of the scenario frameworks Secondary Futures developed prior to June 2004 suggested two fundamental flaws in the effectiveness of such detailed stories as a resource for futures thinking conversations.

- The first was that reading the framework was too time-consuming in workshops. There was also potential to exclude participants, on the basis of literacy, from the Secondary Futures conversation.

- The second was that the frameworks were too detailed too allow participants much scope for *imagining* the future. All imagining had been prescribed.

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[27] " 'Unique Creation' – Possible futures Four scenarios for 21st century schooling," Riel Miller, Tom Bentley, NCSL, Nottingham, 2002

'Reversioned' scenarios

A series of 'snapshot' scenarios, derived from 'Schools as Core Social Centres', 'Schools as Focused Learning Organisations', 'Learning Networks and the Network Society' and 'Extending the Market Model' but summarised and adapted for New Zealand audiences, were produced. Known as the Blue, Red, Yellow and Green scenarios (see appendix 4), these bulleted scenarios allow participants sufficient information to imagine what each schooling experience might 'look' like, and to take on the role of learners, teachers, parents, education and community leaders.

Key questions

To create a vision for secondary education, broad questions need to be asked about the nature, purpose and form of secondary schooling and about the values and preferences New Zealanders have for the future. Independent research commissioned by Secondary Futures identified three key questions, posed in the context of twenty years hence:
- What is the purpose of secondary education?
- How can secondary education best enable young people for their futures?
- How could learning happen?

These questions provide an essential component of the research methodology for the evolving needs of the project.

2. Data collection

- **Key themes**

Having analysed hundreds of responses to the key questions, five clear "themes" have emerged that are fundamental to New Zealanders' vision for secondary education in the future.

These themes are:

a) 'Students first'

This theme explores student-centred learning, what it might look like, and what it would mean for organising and delivering secondary education in the future.

Schooling moves away from a 'one size fits all' model, and places the goals, aspirations, and context of each student at the centre of delivery.

In this vision, a student's dreams and talents are pivotal and defining; students articulate and lead their learning goals.

b) 'Inspiring teachers'

This theme investigates the re-definition of 'teacher', moving away from the traditional role as leaders who transfer knowledge, to teachers as mentors, guides and facilitators working alongside learners.

In this vision, more partnerships would occur and teachers would become more flexible, professional specialists.

c) 'Social effects'

This theme explores how future secondary education can enable each student to achieve whatever outcomes are best suited to their context; who they are and where they come from.

The outcomes of secondary education are multiple and layered. Success does not refer solely to academic outcomes. 'Social' outcomes are at least as important.

In this vision, secondary education enables young people to participate, to contribute, to succeed – as citizens, as part of the economy, as members of families, or part of communities.

d) 'Community connectedness'

This theme investigates preferences around how schooling and the community might connect in the future.

Learning is more connected to the people and places outside the immediate school environment and harnesses all the resources of the community.

In this vision, families, parents and industry and community leaders are all potential sources of knowledge, inspiration and role models who could enhance learning opportunities.

e) The place of technology

This theme examines preferences regarding the role of technology in future education.

There is no doubt that technology will be influential in the organisation of schooling, though opinions about its impact range from optimism, to deep uncertainty and fear. Young people, for instance, worry that a technology-centred learning environment may come at the expense of social interaction.

- **The matrix**

The conversations conducted in 2004 were based on three key questions. From analysis of the hundreds of responses to these questions and the issues raised by participants five themes have emerged. The themes and key questions have been combined by Secondary Futures into a three-dimensional matrix.
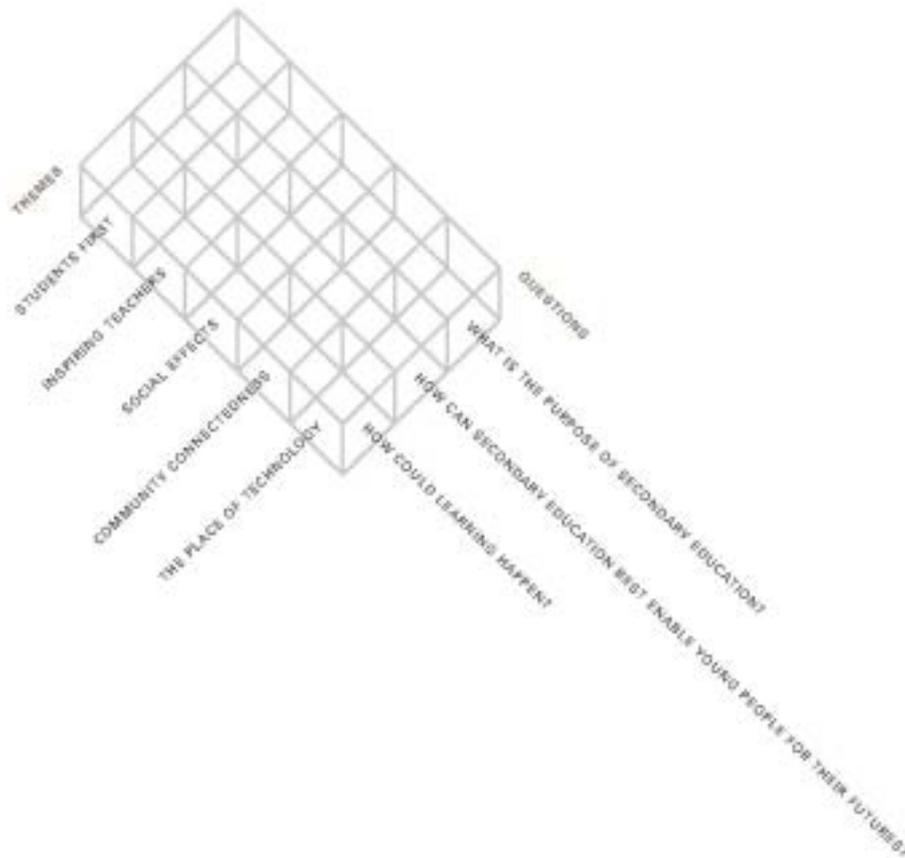
This matrix provides the structure for ongoing conversations, investigations and analysis in 2005. It is intended that the matrix will provide a framework for organisation and analysis of the complex and multi-layered data which arises from our conversations.

The matrix will also serve as a virtual filing cabinet – an online repository for information gathered during the course of the Secondary Futures conversation, and as a reservoir of stimulus material to sustain and drive the conversation over the next two years.

3. Other projects

- **"New schools" project**

Secondary Futures has initiated a project bringing the leaders of newly formed schools together.

Often, the freedom of a new site or new staff provides opportunities for these leaders to be innovative and work differently with learners. Yet a new site or staff are not necessary conditions for these changes. Secondary Futures is collecting stories from these schools and shares them with other schools, so they can consider how they might apply in their own communities. Barriers to change are identified, so that these might be addressed and obviated in the future. Secondary Futures then facilitates the exchange of this information with the state agencies that are in a position to dismantle these barriers.

- **Supporting Futures thinking capability**

Secondary Futures is working with futures projects in the state sector to build futures thinking capability across a range of sectors.

4. Feedback and reflection

As a result of extensive trialling and testing in 2004, Secondary Futures now has a toolbox of resources which can be used to systematically assist people to explore possible futures, the implications for education, and their preferences for schooling in the future. The process and tools developed by Secondary Futures are effective at developing capacity across a range of groups and sectors, including government, community and education, and building basic futures literacy. This capacity building has been acknowledged by all who participated as both necessary and valuable in their current work.

Overwhelmingly, feedback from participants in workshops has endorsed the value working with Secondary Futures to think about a distant future, the methodology, and the resources developed to stimulate rigorous imagining.

> *"What have we learned?*
>
> *We've learned that there's a lot of interest in our work.*
>
> *That with help, people can think seriously about the future.*
>
> *People we've worked with are starting to think outside the box they traditionally think in, extending their own networks, and working alongside others to think about how to get the best for students.*
>
> *And some are starting to take an in-depth look at some future possibilities."*
>
> Mason Durie
> Chair of the Secondary Futures Guardians, November 2004

Secondary Futures has commissioned an external evaluation of the project's methodology and effectiveness to be conducted over the next three years. A report for stakeholders on how Secondary Futures has worked in 2004 is available on our website – http://www.secondaryfutures.co.nz/downloads/End_of_Year_Report.pdf

CHAPTER 9

'TEACHING AS A PROFESSION' IN ONTARIO

Introduction

This chapter begins with a brief description of the Ontario context, its educational system and the task at hand. It then analyses the Ontario research results distinguishing goals, process design, and scenario content. It draws some initial conclusions on outcomes and benefits of futures thinking, and describes the beginnings of the next phase of the English language Ontario project.

In Ontario the first two phases of the "*Teaching as a Profession*" project concentrated on examining the utility of futures scenarios in building policy capacity and in allowing for fruitful and open discussion on the topic of "teaching as a profession" among diverse groups of individuals. Workshops were held with teachers, students, academics, principals, administrators, members of the private sector and civil servants. They illustrated that scenarios are useful in enabling free and open discussion, allowing individuals to think about the future in a different light and in opening people's minds to be receptive of new perspectives.

The third phase of the project will attempt to apply the scenarios to actual Canadian policy issues by using mature case studies and futures scenarios together. Our hope is that by jointly connecting actual historic case studies from other jurisdictions with futures thinking and then applying the discussion to current Ontario policy issues, the quality of Ontario's policy development related to similar issues will be enhanced.

9.1. Context

The changing role of schools and schooling is a major concern to most OECD jurisdictions, including Ontario. There are many perspectives on the purpose of education, each of which prescribes differing roles and status for teaching and schools. Diverse visions of what education is supposed to accomplish include: preparation for work, personal development, transmission of a cultural heritage and other values. Similarly, teachers are also characterized in a variety of ways: from unionised workers to highly specialized professionals. The combination of these different factors results in a complex environment in which it is often difficult to achieve meaningful dialogue, let alone consensus.

In recent decades, citizens in most jurisdictions have sought greater assurance that their schools are graduating properly educated young people. As a result, intense efforts at education reform have taken place worldwide over the last 20 years.

Many of the reform attempts have been directed toward such areas as curriculum, early childhood education, assessment, accountability, and graduation requirements. Particularly over the past decade, education reforms have been largely standards and "results" based, with an emphasis on accountability. In Ontario, these reforms included a new curriculum for kindergarten to grade 12, a new emphasis on literacy and numeracy, standardized testing of students in Math and English, a mandatory learning to age 18 strategy, a funding mechanism for school boards that provides a similar level of per pupil funding

regardless of local tax base, standardized report cards and greater and more meaningful parental involvement. The Ontario College of Teachers, a self- regulating professional body for Ontario's teachers, was also created in 1996.

Given the vital role teachers play in enhancing student outcomes, teaching and teacher education is an integral part of recent education reform efforts. Ontario's contribution to teaching reform has resulted in a set of initiatives aimed at supporting teachers and quality teaching. These initiatives include a teacher induction program, enhanced supports for teacher professional development, an entry to the teaching profession assessment for new teachers, a provincial teacher performance appraisal system (for evaluating teachers), and teaching excellence awards. (An additional reform brought in by a previous Ontario government that mandated professional development requirements for teachers was the subject of intense debate and controversy and has recently been revoked).

9.2. The Task

Governments and educational sector stakeholders invest valuable time, effort, and resources in their efforts to affect change and improve the education system. How can educational sector managers and stakeholders be convinced that the efforts that are being made today will meet the needs of tomorrow? This question resonates even more so when one takes into consideration that educational systems were developed to meet the needs of an industrial society. Today, as OECD countries move rapidly towards a knowledge society with its demands for a new model of the educated citizen, decision makers must make strategic choices to reform the educational system so that the youth of today can meet the challenges of tomorrow. Thus, it is useful to determine whether or not futures thinking adds to the policy choices and decisions faced by educational systems in anticipating the future education needs of an evolving, ever changing society.

In Ontario, the initial task became to stimulate dialogue on the issue of teachers and the teaching profession and to build policy capacity. Ontario developed and utilized modified OECD scenarios to begin to address several issues, including:

- How does the issue of teachers as professionals relate to the quality of teaching?
- In order to maximize student learning and achievement, what would the status of the teaching profession be under the various scenarios?
- Should teachers be treated the same as other professionals?

The Ontario project uses "alternative futures" as an integral contribution to discussion. The methodology is based on a multiple-scenarios strategic planning framework that identifies desirable futures and the strategies for achieving them. The starting point for dialogue was the series of futures developed by the OECD.

Over the course of the project, Ontario has engaged an increasingly wide variety of experts, teachers and others with an interest in education in order to clarify how various alternative ideas about schools and schooling will have consequences relating to teaching as a profession. It is anticipated that this process will allow a series of preferred scenarios to emerge, will enable the development of robust strategies to further policy discussion and decision-making and build greater understanding.

The Ontario project is currently entering its third phase. As with the previous phases, this phase is aimed at further exploring the issue of teaching as a profession and identifying and clarifying how scenarios can assist in the development of a new methodology to support discussion and policy decision making. Unlike the previous phases however, this phase also focuses on whether examining historic case studies of real policy issues, in tandem with examining the same issue using futures scenarios can further

enhance policy making and allow for greater understanding of the contextual issues that can come into play in policy analysis, development and implementation.

9.3. The Ontario System

With a population of more than 12 million, Ontario is home to about 39% of the country's population, roughly one in three Canadians. Eighty per cent of the province's population live in urban centres, largely in cities on the shores of the Great Lakes. The economy of northern Ontario is highly dependent on natural resources, while southern Ontario is heavily industrialized largely because of its proximity to the U.S. market. Contributing about 40 per cent of Canada's total employment, employment in Ontario has shifted largely to the service industries, namely business services, finance, tourism and culture in recent years rather than on assembly lines.

Ontario has a dual-system of publicly funded education, distinguished by language (English, French) and religion (non-denominational, Catholic). While English is Ontario's official language, French language rights have been extended to the legal and educational systems.

Ontario's population growth has always been largely dependent on immigration. Today, Ontario is one of the most ethnically diverse jurisdictions in the world. Almost half of the approximately 250,000 people who immigrate to Canada each year choose to settle in Ontario. Toronto, the largest city in Canada, has been called the most multicultural city in the world, where more than 70 languages are spoken.

Most of Ontario's two million elementary and secondary school students study in English, however approximately 100,000 of these students have French as a first language and study in the French system. There are approximately 120,000 certified teachers, of which 105,000 teach in a classroom setting and the remaining hold various administrative positions.

In Ontario, all permanent residents between the ages of 6 and 16 must attend school. The Ontario Ministry of Education is responsible for education from kindergarten through Grade 12. It develops curriculum policy, sets provincial standards for student performance, evaluates and approves learning materials for use in schools, allocates funds for the system, reports results to the public, and oversees the system's governance.

A publicly funded education system, Ontario's school boards operate and administer their schools using funding received from the province. Ontario's 72 District School Boards are made up of 31 English-language public boards, 29 English-language Catholic boards, 4 French-language public boards, and 8 French-language Catholic boards. As well, a small number of Ontario schools are operated by School Authorities. The School Authorities manage special types of schools, such as schools in hospitals and treatment facilities, and schools in remote and sparsely populated regions.

At the time of the inception of the *Schooling for Tomorrow* policy toolbox project, Ontario's education system was in the midst of heightened levels of tension. The government then in power was trying to deliver on an education agenda of which the content and manner of implementation were very unpopular with most education stakeholders, especially teachers. The positions of various education stakeholders had become polarized and entrenched, with great suspicion by stakeholders of government motives and initiatives. The *Schooling for Tomorrow* project was viewed by the Ministry as an opportunity to promote "safe" discussion and expand thinking about the topic of "teaching as a profession" with a diverse group of education stakeholders and other interested individuals.

In the fall 2004, a new Ontario government was elected. Since then many changes have occurred and significant steps have been taken which have improved government relations with teachers, school boards and other education stakeholders. The issue of "teaching as a profession" remains relevant. The current

government specifically campaigned on a platform of enhanced respect for teachers. The government is also currently in the process of revitalizing the Ontario College of Teachers, the self-governing entity for teachers.

9.4. Goals of Initiatives

The OECD project provides an opportunity to foster discussion about teachers and education amongst individuals within the education sector and beyond. In addition to exploring the value of scenarios to policy development, the hope was and is to use the futures scenarios provided by the OECD to help individuals expand their thinking, and expand the thinking, values and beliefs of their organisations and sectors; as well as reflect on the future of teachers and teaching in Ontario. To this end, the Ontario project's initial goals focused on capacity building and promotion of multiple perspectives and, not necessarily solutions to policy issues.

As the project has evolved, Ontario has become more focused on enhancing the quality of policy development and capacity by exploring new methodology through the use of futures scenarios in conjunction with other mechanisms (e.g., case studies).

9.5. Process Design

Phases 1 and 2

One of the first steps taken by the Ontario Ministry of Education was the hiring of researchers to conduct a literature review on the topic "*Teaching as a Profession*". Next, a core study group was created to act as a project advisory panel. In November 2002, twelve diverse external and internal education experts of varying backgrounds including, educators, bureaucrats, administrators, academics, lawyers, political advisors and union leaders were invited to form the study team for the project. This group tested out the scenarios and the workshop plans. A research team, with experience in futures scenario planning, was also hired in November 2002.

In December 2002, at Ontario's first OECD study group meeting, the study team worked with the OECD's six scenarios. However, as it was found that the specificity with respect to the role of teachers in each of the OECD's scenarios impeded the scope of the conversation and dialogue, the research team modified the OECD scenarios to fit the purposes of the Ontario project and to meet the needs of the study group. The revised scenarios were written to be as broad as possible and to provide a social, political and economic environment within which to discuss the role of teachers. Background charts were created in order to build the necessary context. The charts examined the effects of multiple variables across each scenario. For example, the charts describe the focus of governing power (as one variable) in each scenario. Once the charts had been completed, the differences between the scenarios were exaggerated to create five highly differentiated futures.

The new scenarios made little or no mention of education, as the intention was to provide a general framework within which to discuss the future of teaching and teaching as a profession. Once the study group had worked with five modified scenarios, and became comfortable with them, the process of organising larger workshops began.

Since the February 2003 Poitiers meeting, Ontario held additional study group meetings and workshops. Of the workshops, some were made up primarily of individuals from various organizations and sectors and some were made up of groups representing similar organizations/interests (i.e., teaching regulators, Ministry of Education employees). Approximately 150 people, from across the education and other sectors, have taken part in the Project.

The original workshop was based on a seven-hour time frame. In the morning, participants were divided into groups of five or six and each group was assigned one of the scenarios to discuss and asked to focus on the question: "What would teachers and teaching look like in this future?" In the afternoon, the participants moved on to a second scenario and endeavoured to isolate some actions that would maximise the positive aspects and minimise the negative aspects of the scenario.

The selection of participants for the workshops was largely based upon recommendations of the study team and other past workshop participants. Participants were asked to suggest individuals who would be able to actively participate in the discussions. As earlier noted, three of the workshops were purposely composed of individuals of varying interests and backgrounds. These groups were geographically and sectorally diverse, with individuals from various constituencies and positions within sectors such as education, labour, health and communications attending from across Canada, as well as from the United States.

In response to feedback from the workshops held in Phase 1, the workshop structure for Phase 2 of the *Teaching as a Profession* discussion was changed. After the March 18, 2003 workshop, participants commented that they would like an opportunity to work with all five scenarios instead of just two. At the next workshop in May, the afternoon was modified to allow everyone to deal with all the scenarios.

The scenarios were further modified as the project progressed. To focus the conversations on teaching, brief paragraphs were added to the scenarios to describe the educational environment. A list of targeted questions was provided to each group in order to better focus the discussion on the specific education issues Ontario wished to explore. Also after the March 18, 2003 workshop, the charts on which the scenarios had been based were distributed to participants along with the scenarios. This appeared to increase people's confidence in the scenarios.

One of the distinctive aspects of the *Teaching as a Profession* model was the use of voting. At the beginning of each workshop, participants were asked to vote on the scenario that they believed to be most likely as well as on the scenario that they preferred with the idea of determining: i) whether votes were distributed evenly among the groups; and ii) to introduce the difference between preference and likelihood. At the end of the day, a second vote was taken to determine if people's opinions had shifted (see chart 1.1 below). Although the results demonstrate this only to some degree, at individual meetings, there were often marked shifts between the first and second rounds of voting. Even though it did not occur at all the meetings, a shift was a positive sign as it showed how the use of scenarios could open up people's thinking. Voting therefore served as a tool to facilitate discussion and to challenge previously entrenched ideas. Voting helped provide concrete evidence that *the use of scenarios* can successfully open up or expand people's thinking.

The questionnaire results from our Phase 1 and 2 workshops produced the following outcomes:

1.1 Questionnaire Results

	Preferred (round one)	Preferred (round two)		Most Likely (round one)	Most Likely (round two)
1 – Refining the Past	31	33		50	51
2 – Breakdown	0	2		7	4
3 – Community Focused Model	35	23		6	13
4 – Macro-markets	12	11		45	23
5 – Complexity	47	36		17	14

Phase 3

A third phase has recently been initiated. It is intended to further evolve the toolbox and pursue discussions to directly address policy questions related to teaching as a profession, by considering case studies from the past, scenarios for the future, and applying them to policy development in the present. Three case studies were commissioned to examine the social, economic and political circumstances of three school-related policies that had been implemented in other provinces in Canada. By using these case studies, we are better able to understand the context within which policy decisions are made. The topics of the case studies are:

- Mandatory School Attendance (New Brunswick)
- Provincial Student Assessment (British Columbia)
- Open School Catchment Boundaries (British Columbia)

A workshop was designed to submit the case studies to discussion using futures scenarios as a vehicle. In April 2005 a pilot workshop used Study Group members as participants. It considered the New Brunswick Mandatory School Attendance policy which raised the school leaving age from 16 to 18. In the morning, participants were asked to examine this policy in the context of each of the five futures scenarios using the following questions: "Would this policy make sense in this scenario?" "How would you change it?" "How would the policy affect teachers and teaching in this scenario?" and "What other policies would you consider or introduce in this scenario?" The discussion led to unexpected insights into the nature of the policy and some of its consequences. For example, in some scenarios, there was no adolescent age at which school leaving could be set because of requirements for life long learning. In others the formal school leaving age might have to be lowered to allow students more opportunity to work in conjunction with their education.

In the afternoon there was a detailed and lively elaboration of the case study, which explored its place in the social, economic and political context of New Brunswick at the time. The participants were then asked to adopt a role (not their own) while they discussed the two following questions:

Assume you belong to a particular interest group (e.g., teacher) and that you live in New Brunswick in the future (e.g., Scenario 1). Looking back to the 90's when the Mandatory School Attendance policy was being developed, and given what you know about the future, how would you have changed the position you took on this policy in the 90s?

Assume you belong to a particular interest group (e.g., teacher) and that you live in New Brunswick in the 90's. You have knowledge on what the future is going to look like (e.g., Scenario 1). Given your knowledge of what the future is like, how would it influence your position on a Mandatory School Attendance policy that is currently being developed (i.e., in the 90's?)?

Feedback from the pilot workshop indicated that utilizing case studies, as well as futures scenarios was extremely useful and stimulating in terms of generating discussion. As a result of lessons learned from the pilot workshop, a new workshop has been devised which begins with a discussion of a case study, and then asks the questions used in the morning of Workshop 1 and ends with lessons for current policy discussions. This workshop will be the first of a series to connect historical case studies (past) to scenarios (futures) in policy discussions (present).

9.6. Scenario Content

Ontario's *Teaching as a Profession* used modified scenarios (see box) as a basis for discussion. The five alternative scenarios illustrate differing impacts on teachers' roles in Ontario thirty years into the future. They have been constructed to differentiate possible roles for teachers and perspectives on teaching in the long term. Based on present conditions, tendencies, and projects, they are broadly aligned with the OECD documents prepared by the Policy Studies Institute. The schooling alternatives were developed by a group of researchers in Ontario in order to provide a basis for exploring possible ways of teaching in the future.

The scenarios are differentiated using many parameters. For example, the macro-market future does not depend on continuing political rule by international market advocates. Instead it considers that these attitudes will predominate everywhere so that all political parties will assume policies in the direction of those indicated. Some factors are projected in all five futures. But there may still be variations of emphasis because of the overall differences. In all scenarios, there are important advances in our understanding of education: a more fundamental knowledge about many developmental processes and influences on learning and capacity. But these occur at differing times and with differing impacts in the different scenarios.

The Ontario 'Teaching as a Profession' Scenarios in Brief

Refining the Past. This future brings new evidence and experience to the structures and processes of 2003. Canadian civil federalism becomes a preferred world model. Governing systems become far more efficient and accountable and the mixed public/private economy is regulated to produce slow and steady growth. The educational system is highly regulated in terms of curriculum, credentials and accountability for results.

Breakdown. A depressed and unstable future with a very high level of unemployment and underemployment. Warfare and terrorism increase the number of refugees and international trade becomes difficult. Technological innovation supports effective, low-cost ways of delivering no-frills service. Public education systems breakdown, become smaller, are chronically under funded and less comprehensive. Alternative forms of schooling increase

Community Focused Model. This future emphasizes the impact of changes in the nature of community life. Community life changes dramatically with an increase in the concern for the environment. Large numbers of self-sustaining communities develop strong local cultures and are responsible for educating their own members.

Macro Models. This future maximizes the long-term impacts of global trade. Major global businesses increase dramatically in number and scale and the boundaries between corporate and national interests become blurry. The importance of knowledge management is recognized in both the public and private sector as essential to development. Lifelong learning becomes common for everyone.

Major Breakthroughs in Complexity Science. Complex systems develop with linked social, economic, and political growth tied to access to "learning by doing". Multi-faceted learning networks are possible due to communication and transportation capacity provided by technology. Lifelong learning is encouraged.

9.7. Outcomes and Benefits

Benefits of Futures Thinking

Since this project began, a number of important lessons have emerged. The scenarios proved to be an effective way of opening up people's thinking and moving them away from entrenched biases and

viewpoints. Utilizing the scenarios also gave participants the opportunity to discuss certain issues in education in an open environment. People felt that they were able to talk about education with individuals in a setting and manner in which they would never normally have the opportunity. One participant said, "I find the scenarios have helped me broaden my thinking. I find myself slipping back at times but at least now I can identify when I'm being narrow-minded. I find it interesting and informative to be able to hear other people's points of view and to have the experience to work with a group of such a wide variety of backgrounds is very enriching". Another participant found that "when you speculate, you generate options to create". There was great enthusiasm about the project for those reasons.

Limitations of Futures Thinking

Many participants felt that there are limitations to the use of futures scenarios generally and the use of particular futures scenarios in policy development. One such person wrote, "Policies reflect the contexts in which they arise, including the traditions, values, institutions, resources, etc. that characterize those contexts… The scenarios … are insufficiently sensitive to context for the purpose of policy development". Overall the project, up until this point, has shown that scenarios are useful for promoting discussions, but there may be limits to their usefulness in policy development, particularly because they can never fully capture the contextual and situational importance in which policy is designed, decided upon and delivered.

Through the introduction of a case study approach, the third phase of the project is intended to bring the scenarios closer to current policy issues that face schools in Ontario. As only one phase three pilot workshop has been held, the outcomes of this new approach remain to be seen.

Lessons Learnt for Policy Development

The first two phases of the Ontario project were a success. They showed quite clearly that futures scenarios could be effective in opening up discussion among competing groups on a contentious issue such as the future of teaching as a profession. The use of future scenarios allowed such disparate participants as union leaders, parents, school administrators, teachers, and civil servants to engage in discussion without falling into traditional postures. Almost all showed a capacity to explore the issues in depth considering a range of future possibilities, most changed their minds about the future they preferred and some changed their minds about which was most likely. This was demonstrated by the very positive feedback received from the post-workshop discussions (see chart 1.2 below).

1.2 Questionnaire Results

	1(worst)	2	3	4	5 (best)
What was your overall impression of the workshop?	0	0	5	35	50
Please rate how useful you found the scenarios in expanding your thinking.	0	0	11	41	38
Please rate the potential utility of the scenarios in policy development.	0	3	14	33	38
How did you feel about the length of the workshop?	Too long 5	X	Just right 66	X	Too short 19

Results from these workshops have led us to conclude that futures scenarios can be useful in opening up policy discussion among diverse groups on difficult topics.

In the third phase we are attempting to consider the connections between future, past and present policy concerns. We have commissioned three case studies of past policy initiatives. We are designing workshops that relate these to future scenarios with a view to their application to current policy issues. We have so far drawn no conclusions, but look forward to the development of a product that can help participants understand more about the process of policy development and improve participation in actual policy debate.

CHAPTER 10
VISION 2020 STATUS REPORT[28]

INTRODUCTION AND BACKGROUND

This document provides an update and overview of the *Vision 2020* project, an initiative developed by the Ontario Ministry of Education in the fall of 2002 under the auspices of the OECD.

The *Vision 2020* initiative is being undertaken as part of the OECD's *Schooling for Tomorrow*, a major international project designed to foster the development of methods and tools for futures thinking in education. *Schooling for Tomorrow* is being carried out by the OECD's Centre for Educational Research and Innovation (CERI).

This report documents the development and implementation of *Vision 2020* from the fall of 2002 to the present, and provides a preliminary analysis of the outcomes of Phase III of the project, as of the spring of 2005.

The *Vision 2020* Initiative

In the summer of 2002, the Ontario Ministry of Education was invited by the Organisation for Economic Co-operation and Development (OECD) to take part in its *Schooling for Tomorrow* project. The ministry decided to run two parallel *Schooling for Tomorrow* initiatives, one in English and one in French, named *Vision 2020.*

Developed and implemented by the Ministry's French-Language Education Policy and Programs Branch, *Vision 2020* was both timely and appropriate to the needs of the province, six years after Ontario's francophones had gained access to school governance. At this time, the Ministry, French-language educational institutions, and the various partners in education, felt the need to assess their progress, define the challenges they face in delivering quality French-language education, and reflect on the future of French-language education in Ontario. The *Vision 2020* initiative provided an ideal platform for this reflection.

The provincial context

Ontario's education system is sub-divided into four school systems: English-language public, English-language Catholic, French-language public and French-language Catholic.

In 1998, distinct (Catholic and public) school systems were established for Ontario's francophone community. School governance has made it possible for francophone parents to gain more control over their schools through French-language school boards, and many new schools have been opened. The francophone minority is nevertheless concerned about assimilation and the erosion of its unique culture.

The threat of assimilation is the principal challenge facing the Franco-Ontarian community. In fact, the challenges faced by the half-million francophones living in a minority environment in Ontario are similar to those faced globally by the world's minority communities:

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28 .   Prepared by Monique Gauvin, Consulting Sociologist for the Ministry of Education, Ontario, Canada French-Language Education Policy and Progams Branch.

- Marginalization and erosion of their linguistic and cultural space
- Low francophone birth rates
- The arrival of immigrants, a great majority of whom adopt English on their arrival in Canada (nine out of 10 immigrants adopt English)
- Rising rates of exogamous marriage
- A small francophone population representing 4.5% of the total population (Statistics Canada, 2002)
- Distribution of the francophone community across a geographically large and predominantly anglophone population
- Saturation by English-language media

These factors contribute to the uncertainty surrounding the long-term continuity of Ontario's French-language community. In this context, schools must respond to formidable challenges with respect to transmission of the language, building of a francophone identity, appropriation of the culture, academic performance and success in a minority environment, and recruitment and retention of those students who have the right to receive instruction in the minority language.

Given this context and these challenges, *Vision 2020* participants have been especially sensitive to the issues implicit in the OECD scenarios with respect to the very future of schooling in the larger context of changes that are occurring internationally. The *Schooling for Tomorrow* project and its toolbox of futures scenarios have provided an ideal opportunity to resume reflection on the future of French-language education in Ontario.

Goals of the initiative

The key objective of Vision 2020 is to establish a dialogue involving the Ministry of Education, education partners, and representatives of the "new generation", aimed at the development of a shared vision of French-language education in Ontario, and joint strategies for achieving it.

School governance was established as a result of claims from the French-language community that were ultimately successful. The challenge now is to enable the various education partners to move beyond this stage, and shift their focus toward developing the French-language education system's capacity to reflect on its long-term development, and engage in open discussion on a matter of public policy with respect to its own vitality and survival. It must ask itself the question: What kind of French-language school do we want in the future? Such a question also calls for an assessment of the methods that could be used to define the parameters of the French-language school of tomorrow.

The scenario-based approach to visualizing the parameters of the school of the future has proven worthwhile as a means to develop the capacity to think about the future, in part because it challenges our tendency to perceive the majority model as the ideal model both in the present and for the future. The approach provides an opportunity to consider other options for the school of tomorrow. In addition, forward-thinking allows us to challenge concepts and expectations that limit our ability to act in the present.

PROCESS AND IMPLEMENTATION

Process development

The current *Project Vision 2020* scenario-based approach was developed through three phases. Throughout the process, scenarios have been used to open discussion and free participants from everyday concerns that might prevent them from seeing desirable futures.

Phase I: (September 2002 to February 2003)

In the first phase of *Project Vision 2020* an Expert Panel was struck. During this phase participants familiarized themselves with the forward-thinking approach by considering the question, "If any of the six OECD scenarios prevailed, what impact would each scenario have on francophone school governance and, specifically, on the French-language school?" Discussions considered topics such as the governance of French-language schools, cooperative structures for the public and Catholic components of the system, administrative models for the recruitment of educators and the nature of parent and community participation.

Phase II: (March 2003 to December 2003)

In the second phase, scenarios implicit in the Ministry's Aménagement linguistique (language planning) policy were compared with the OECD scenarios.

Phase III: (since January 2004)

In the third phase of the project, the OECD scenarios were explored with groups representing the "new generation" of students, young parents and teachers, through a filter of individual and shared values in order to develop a seventh scenario for the French-language school of the future.

Scenario content

The design process for *Project Vision 2020* was slow and deliberate, in order to build capacity and encourage dialogue. Responses to initial discussions by Ministry representatives and members of the Expert Panel led to significant changes to the project:

Firstly, Panel members wanted more time to examine the OECD scenarios, so summaries and an analytical framework were developed to help them do this, with a focus on governance in the future.

Secondly, the members of the Expert Panel and a group of francophones from various Ontario government ministries began exploring the links between the scenario-based approach and the process used to develop public policy, in this case the Government of Ontario's Aménagement linguistique (language planning) policy, which was being developed at the time.

In doing so, participants noted the scenario-based approach's limitations in taking context into account, especially challenges faced by minority communities, and linguistic and cultural issues. Phase III of the *Vision 2020* project—the exploration of the OECD scenarios through the values filter and the creation of a seventh scenario for the French-language school of the future—was developed in order to give this context greater consideration.

Workshop development in Phase III

The Fédération de la jeunesse franco-ontarienne (FESFO), which has considerable expertise in youth facilitation, was key to the design of this third phase. In January 2004, an agreement was reached between the Ministry of Education and the Fédération de la jeunesse franco-ontarienne (FESFO) concerning the approach, facilitation formula and logistics of organizing a workshop for young Franco-Ontarians. The approach used in that workshop has been used and continuously improved in subsequent ones during 2004 and 2005 with groups of the "new generation" and education partners and is described below.

In the *Vision 2020* workshops, activities are focused on the *Schooling for Tomorrow* scenarios published by the OECD in 2001. The participants take ownership of the scenarios through a series of facilitated discussions that last 12-15 hours over two or three days, as follows:

Step 1: Identification of Values

Participants use the facilitation tool developed by FESFO to identify their own values and the values shared by the group for the French-language school of the future.

Step 2: Scenario Work

Using a facilitation framework developed by FESFO and the Ministry, the participants are divided into six groups. Each group is asked to carry out an in-depth analysis of one of the six OECD scenarios and to become expert in this scenario. The participants are asked to identify the advantages and challenges of such a scenario, the winners and losers, and the values inherent in the scenario under discussion, and to evaluate the impact of such a scenario on the French-language school. The members of each group are then asked to develop their own stories based on the scenario they have explored, and to present the scenario to all of the other participants, in the plenary session, in the form of a skit or some other kind of presentation.

Step 3: The Seventh Scenario

Lastly, the participants are divided into sub-groups and asked to develop a seventh scenario that describes the parameters of the French-language school of the future based on their essential values. Each sub-group then presents or describes its seventh scenario to the other participants during a final plenary session. The desired outcome of this step, and ultimately of the project, is the development of a shared vision of the desirable future for French-language education in Ontario.

OUTCOMES AND ANALYSIS

The overall outcomes of the *Vision 2020* project cannot be evaluated until a comparative and cumulative analysis of the content of all of the consultations has been carried out at the end of the process, which is expected to conclude by the end of 2006. Consequently, the observations reflected here should be considered preliminary.

We believe the *Vision 2020* project is leading toward the development of a vision for French-language schooling in 2020, in part through the workshop approach developed during Phase III of the project.

This approach, which is based on shared values, enables us not only to further explore the OECD scenarios but to develop a seventh scenario for the French-language school of the future, based on values that are considered essential and desirable by the participants.

After initial testing of the approach with a group of 24 young people in February 2004,[29] 17 parents in June 2004[30] and 24 teachers in November 2004,[31] we updated the facilitation formula for use with a group of 23 French-language school principals in April 2005 and 23 directors of education and school board trustees in May 2005. During the process, we compared the "visions" that emerged from each group to verify the extent of their complementarity.

In a subsequent phase of the project, we would like to test the approach with heterogeneous regional groups to obtain the perspective of the broader francophone community concerning the desirable school of the future.

Learning Process

Among the observable outcomes of Phase III of *Vision 2020* is the fact that the project is becoming a significant consultation initiative, both because of the number of consultations that will have taken place by late 2006 and because of the number of people consulted. In addition, in December 2004, consultation-planning tools and research tools for analyzing the content of these consultations, and changes to the facilitation process, began to be developed.

In the summer of 2005, we are also beginning work on a *Vision 2020* Facilitation and Consultation Kit to help education partners and community agencies take ownership of the consultation process. We hope to have the kit available in the winter of 2006.

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[29]French-Language Education Policy and Programs Branch. *Compte rendu analytique du Forum Jeunesse Vision 2020, 27 au 29 février 2004* (Analytical Report of the *Forum Jeunesse Vision 2020*, February 27-29, 2004), (prepared by Monique Gauvin, consulting sociologist), Ontario Ministry of Education, Toronto, May 5, 2004.

[30]French-Language Education Policy and Programs Branch. *Compte rendu analytique du Forum Vision 2020 avec les parents, 18 au 20 juin 2004* (Analytical Report of the *Forum Vision 2020* with parents, June 18-20, 2004), (prepared by Monique Gauvin, consulting sociologist), Ontario Ministry of Education, March 2005.

[31]French-Language Education Policy and Programs Branch. *Compte rendu analytique du Forum Vision 2020 avec les enseignantes et les enseignants* (Analytical Report of the *Forum Vision 2020* with teachers): work in progress.

Learning through an inclusive and experimental approach

The challenge of the consultation and facilitation approach adopted in Phase III of the *Vision 2020* project was to encourage the participants to take ownership of the process, which consists of analyzing and further exploring the OECD scenarios through a values filter and creating a seventh scenario for the French-language school of the future that takes the shared values into consideration. We believe we have now assembled the winning conditions for such ownership.

The appropriateness and benefits of an inclusive approach

Of course, the adoption of an inclusive approach, from the grassroots to the decision-makers and encompassing those who study, teach, administer and manage within the French-language education system, is based on the premise that change in the French-language education system cannot be conceived of solely as a movement that trickles down from the top of the hierarchy to the bottom. The adoption by *Vision 2020* of an inclusive approach that begins with those at the bottom of the hierarchy has so far been very favourably received by the participants.

For example, some adults said they appreciated the fact that young people were consulted first, and some young people felt valued because their point of view was considered. Asking partner organizations to help with the recruitment of participants gave these organizations an opportunity not only to see members of their "new generation" in action, but also to assess the appropriateness of the consultation and facilitation process on site and take part in its ongoing evaluation.

The approach that has been adopted is also supported by the idea that no education system in a minority environment can be developed, and no reflection on its future can be conceived of, without the perspective and contribution of the community it is meant to serve. This approach reflects the spirit of the Aménagement linguistique policy[32] that has been implemented by the Ontario Ministry of Education. In this respect, *Project Vision 2020* is contributing, as far as possible, to all stakeholders' involvement in reflection on the future of French-language education in Ontario.

The appropriateness and benefits of a partnership between the Ministry and the Fédération de la jeunesse franco-ontarienne (FESFO)

One aspect of Phase III of *Project Vision 2020* was the creation of a partnership between the Ministry of Education and the Fédération de la jeunesse franco-ontarienne (FESFO) to establish a model for the forthcoming consultations and organize these consultations.

The partnership between the Ministry Working Group (which coordinates logistics and research) and the Fédération de la jeunesse franco-ontarienne (which takes part in recruitment and is responsible for facilitation) has proven highly productive. Having a third party assume responsibility for facilitation frees the Ministry to listen to and analyze the consultation sessions, and enables the young people and adults who are being consulted to experience a facilitation and consultation process that has been developed primarily by FESFO.

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[32]The Ontario Ministry of Education's *Politique d'aménagement linguistique de l'Ontario pour l'éducation en langue française* (*Aménagement linguistique—A Policy for Ontario's French-Language Schools and Francophone Community*) was officially released in October 2004.

The limitations of the scenario-based approach

Of course, the OECD scenarios do have certain limitations in their capacity to encourage forward-thinking, limitations that were in fact noted by several of the jurisdictions that took part in the *Schooling for Tomorrow* project. With respect to *Project Vision 2020*, we have seen that the participants in the *Vision 2020* forums perceived several of the scenarios as more relevant to the present than to the future. And in fact, the forward-thinking indicators in the *Vision 2020* project look ahead 20 years or less, to the relatively near future.

In view of such limitations, the facilitators have made a special effort to encourage workshop participants to look beyond their present-day concerns and do their utmost to see themselves in 2020. To better prepare the participants, a visualization exercise has been introduced at the start of the consultation, during an icebreaker session. The participants are encouraged to introduce themselves, to tell the others where they were 15 years ago, to assess the most important change that has occurred since then and to evaluate what, in their opinion, has been the most important change in the past 15 years.

Evaluation of the consultation and facilitation approach

During Phase III of *Project Vision 2020*, we were able to confirm whether or not we were on the right track by means of ongoing evaluation of the facilitation process used by FESFO through the inclusion of evaluation questions in the participants' guide and the facilitators' guide and an evaluation session for the main organizers at the end of every consultation. Drawing on aspects considered positive as well as criticisms made after each consultation by participants and organizers concerning aspects such as the method used to analyze and explore the scenario content, the facilitation approach and quality, and the choice of facilitators for each consultation, *Project Vision 2020* has embarked on a process of continuous improvement from one consultation to the next. At the same time certain basic elements used to compare the results of the various *Vision 2020* forums have been retained.

Learning through participant ownership of the process

The challenge of the facilitation approach was to enable the participants to take ownership of the process of analyzing and further exploring the OECD scenarios and creating a seventh scenario for the French-language school of the future. Within the framework of the process that was used, the participants were able to:

- identify both their individual values and the values that they as a group consider the values of the French-language schools;
- analyze and further explore the OECD scenarios, reflect on the values inherent in the scenarios, the advantages and disadvantages or challenges posed by the scenarios, identify the winners and losers in each scenario, thereby recognizing others' realities in the scenario, whether they be students, teachers, parents, administrators, etc.;
- imagine themselves as a group in a given scenario because the participants were encouraged to ask themselves questions about the scenario's impact on the francophonie and, specifically, French-language schools and the French-language education;
- identify those values they consider essential and desirable and develop a seventh scenario for the French-language school of the future by mapping the desired scenario with reference also to people who have parental responsibilities, who are studying, teaching or acting as administrators, to design a structure for a French-language education system in the desired scenario, the distribution of power in such a scenario, and so on.

In general, the participants tend to appreciate the weekend they have spent reflecting on the French-language school of the future.

Based on the consultations that were begun in January 2004 and have been analyzed thus far, and on the evaluations submitted by participants in the consultations that have already been carried out, the participants:

- feel they have experienced an authentic consultation process in which they feel respected;
- generally say they appreciated the Ministry's attentiveness and felt their opinion counted;
- say they appreciated the facilitation skills and professionalism of the Fédération de la jeunesse franco-ontarienne (FESFO);
- appreciate the opportunity to explore their personal values (a time for reflection that they do not often have at school) and to identify the values they share with others by identifying as a group the French-language school of the future; in their evaluations many of them stated that they appreciated the opportunity to realize they were not the only ones who felt like that;
- are aware of the increased problems of social exclusion and the inequities which they observe both in their visualization of some of the OECD scenarios and in the current situation; one area where inequities are observed is in the distribution of resources between Ontario's minority and majority education systems; some participants are also concerned that the scenarios resulting in privatization could reduce access to education for students from less wealthy families; others are also concerned that performance standards or evaluation criteria that are too high or too inflexible could result in even greater exclusion of students with learning disabilities.
- tend to incorporate in their development of a seventh scenario for the French-language school of the future issues related to immigration and diversity, the environment and information and communication technologies;
- were able, in their homogeneous groups, to ask in-depth questions about the roles of parents, students, teachers and principals in the context of the situations described in the scenarios and of a seventh scenario for the French-language school in 2020;
- noted the changing nature of family and community life in their exploration of the OECD scenarios and took this into consideration in the development of the seventh scenario for the French-language school of the future, and reflected on the impact of such changes on the link between the school, the family and the community;
- believed that the development of the seventh scenario for the French-language school of the future generally enabled them to articulate the desired scenario and to identify the key elements of a shared vision of the French-language education of the future;
- appreciated the opportunity to reflect on the future of the French-language school outside the usual context and its contradictions and to explore a variety of potential changes and directions in the development of French-language education.

Overall, the approach developed during Phase III of *Project Vision 2020* enabled the participants to initiate dialogue, develop the capacity to reflect on possible or probable futures through the OECD scenarios and imagine the French-language school of the future based on the shared values that were collectively considered essential and desirable.

Unexpected outcomes of Phase III of the Vision 2020 project

The consultations that have been carried out so far have resulted in valuable outcomes that were not anticipated initially.

Participants' awareness of their identity

The discussion by francophone students, teachers and parents of the future of French-language education and the challenges posed by the collective future is an opportunity for participants from various regions and ethnocultural communities in the province to get to know one another better, to share their unique characteristics, their differences and their similarities, to discover what they have in common, and to become aware of what unites them. The process of exploring the OECD scenarios and developing a seventh scenario for the French-language school of the future is in fact similar to collective action research that incorporates reflection on the features of a collective identity.

Unanticipated transforming effects

Many participants say their participation in the *Vision 2020* forum prompted them to want to become more involved in the French-language education system. Others created exchange networks after the consultations to continue the reflection or take action as a group. These are indicators that the consultations could have a transforming effect on participants.

Furthermore, many participants spontaneously made a connection between the concept of the learning community in one of the OECD scenarios and the concept of the learning community that is part of the Aménagement linguistique policy. They also made the connection between the concept of schools as core social centres that appears in the OECD scenarios and the necessary strengthening of the links between family, school and community advocated by the Aménagement linguistique policy by proposing structural changes in the seventh scenario that are conducive to the establishment of such connections.

Initiatives prompted by participants

After the consultation with teachers, some participants decided to design and organize *Vision 2020* consultations in their elementary and secondary school classrooms. These initiatives are paving the way for the development of *Vision 2020* classroom learning tools. The Ministry and FESFO plan to reflect these experiences in the preparation of the *Vision 2020* Facilitation and Consultation Kit.

Development of methods for planning and organizing consultations

The development of research tools

Once the facilitation approach had been determined, we developed the following tools to document and analyze the content of the consultations and highlight the vision of French-language education that emerged:

- A *Gabarit de cueillette de données*,[33] or data-collection template, for use by note-takers during consultations;

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[33]French-Language Education Policy and Programs Branch. *Gabarit pour la cueillette de données lors des consultations Vision 2020 en 2005* (Template for Data Collection during *Vision 2020* Consultations in 2005),

- A standard method for analyzing consultations using analytical reports produced by the Ministry;
- A method for evaluating the facilitation process using a report written by FESFO after each consultation;
- A *Grille de comparaison des consultations Vision 2020*[34] used to map changes in the facilitation process and identify the analytical categories of the content of the consultations.

***The development of a Vision 2020 Facilitation and
Consultation Kit for education partners and community agencies***

In Phase III of *Project Vision 2020*, we tested a new consultation and facilitation approach based on the analysis and further exploration of the OECD scenarios through the filter of individual and shared values and the creation of a seventh scenario based on values that were considered essential and desirable.

After testing such an approach in the five consultations carried out between February 2004 and May 2005, and refining the process with the help of the evaluations from each consultation, we feel we can produce a definitive version of the process, in the form of a *Vision 2020* Facilitation and Consultation Kit which we would like to publish and distribute in 2006.

The kit is intended to support our education partners and agencies in the francophone community in their reflection on the future of French-language education in Ontario. The kit must be flexible and geared to a democratic and inclusive approach. It could also include a *Vision 2020* learning tool for the classroom.

Use of the OECD Scenarios

During Phase III of *Project Vision 2020*, we gave the participants abridged versions of the OECD scenarios for use in the discussions.

Participants' perceptions of the OECD scenarios

Since not all of the scheduled consultations have been completed, and only a few of them have been synthesized and analyzed, we would like to point out that the following analysis of participants' perceptions of the scenarios is incomplete and these comments could change to reflect upcoming consultations.

- For the time being, even in Phase III of *Project Vision 2020*, the preferred scenarios are still the "Schools as Core Social Centres" scenario and the "Schools as Focused Learning Organisations" scenario, which are generally considered more reflective of the values of the French-language schools;
- Thus far, the "Extending the Market Model" scenario does not appear to be part of a desirable future for the participants;
- Thus far, two scenarios are considered more relevant to the present than the future: the "Teacher Exodus" scenario and the "Bureaucratic School Systems Continue" scenario;

Working Document No. 2 (prepared by Monique Gauvin, consulting sociologist), Ontario Ministry of Education, April 2005.

[34]French-Language Education Policy and Programs Branch. *Tableaux synoptiques comparatifs des consultations / Grille de l'évolution du processus d'animation et des catégories d'analyse* (Comparative Synoptic Charts of Consultations/Grid Mapping Changes in the Facilitation Process and Analytical Categories, Draft No. 2 (prepared by Monique Gauvin, consulting sociologist), Ontario Ministry of Education, February 14, 2005.

- Two scenarios are often discussed as solutions (the solution to something unacceptable in its current version): the "Teacher Exodus" scenario and the "Learning Networks and the Network Society" scenario.

The use of the OECD scenarios as a forward-thinking method and their exploration through the values filter encourage the participants to imagine themselves in probable or possible futures while reflecting on the values the OECD scenarios convey and the potential impact of each scenario on the French-language school.

The seventh scenario for the French-language schools

In their reflection on the seventh scenario for the French-language school of the future, the participants have been able thus far to explore and identify what they consider the preferable or desirable future of the French-language school. The facilitation challenge has been to ensure the participants have enough time during the consultations to develop such a scenario and are provided with indicators in order to describe the scenario as clearly as possible. As the series of consultations continued, the categories of discussion that were used to help the participants describe the seventh scenario changed and eventually became the following questions:

- How would you describe the French-language school of the future in terms of learning and its organization, administration and governance, resources and infrastructure and teachers?
- What values are inherent in the seventh scenario for the French-language school of the future?

For the time being, the summary description of the content of the seventh scenario, as created by the participants, appears in the analytical report that was produced for each consultation that has been analyzed thus far. We plan to use the comparative cumulative analysis of the consultation discourse to describe the vision of French-language education that emerges from the consultations as a group.

Project Vision 2020 and Public Policy Development

Project Vision 2020 has changed and progressed to become, by Phase III, an extensive consultation project in which participants are asked to take ownership of reflection on the French-language school of the future, and the consultation and facilitation approach is designed to encourage this ownership process and to create spaces and tools so that this ownership can take place. In *Project Vision 2020*, the Ministry acts more as facilitator, partner and participant than absolute owner of the process. The Ministry also agreed to embark on a process in which not everything is pre-determined, and testing and research play a substantial part. But what link can be made between *Project Vision 2020* and public policy development?

In our opinion, the strongest link consists of taking a component that is often taken for granted in the public policy development process, consultation, and introducing an element of risk -- the risk of placing oneself in a listening position and giving the floor to those who do not often have it in a school system that we claim must meet their needs. The results have often been strikingly authentic, fostered by an awareness of others' experience and the capacity within each person to effect change.

Vision 2020 and the Aménagement linguistique policy

Phase III of *Project Vision 2020* took place when the Aménagement linguistique policy was being implemented in the French-language district school boards. The policy promotes the building of a francophone identity and the development of participatory leadership through the establishment of learning communities, and advocates linguistic and cultural reproduction and the sustainable development of the French-language community through increased family/school/ community partnerships or alliances.

While they are the product of an international initiative, the *Vision 2020* consultation forums are an arena for discussion on what a learning community in operation could be. They are also a place where ideas emerge concerning methods to implement for the structuring of such learning communities but also to strengthen the links between family, school and community in a context of globalization, the development of information and communication technologies and the development of a knowledge-based economy.

CONCLUSION

In its vision statement, the Ontario Ministry of Education expresses the belief that in order to marshal widespread commitment and resourcefulness to deal with the most substantive education issues, it will strive to establish more interactive relations with its education partners and the public which are more responsive to mutual influences. Included in the four strategies the Ministry proposes for achieving such a vision is a reference to involving students, families and communities in the establishment of a positive learning environment.

Vision 2020 has changed and progressed to become a consultation project in which participants are asked to take ownership of reflection on the future of school, and the consultation and facilitation approach is designed to encourage this ownership process and to create spaces and tools so that this ownership can take place. Consequently, *Project Vision 2020*, through its consultative and inclusive nature, is contributing to the development of a culture of partnership among the Ministry, the education partners and the community and, in this case, to the community's involvement in the definition of the future of its education system.

In 2005, the Ontario Ministry of Education undertook to continue its cooperation with the OECD in Phase III of the *Schooling for Tomorrow* project. The reports that are to be submitted to the OECD will track the progress of *Project Vision 2020* and the other initiatives that will take shape during Phase III of the *Schooling for Tomorrow* project.

CHAPTER 11
REFLECTIONS ON THE POTENTIAL AND PRACTICE OF FUTURES THINKING - THE TORONTO FORUM RAPPORTEURS

Five international experts in the fields of education and futures thinking were invited to participate in the Toronto Forum. Charles Ungerleider, Walo Hutmacher, Raymond Daigle, Hanne Shapiro and Tom Bentley not only observed the conference proceedings but in their reports gave their perception of the project and and their vision of what futures thinking can achieve.

11.1   Charles Ungerleider

Futures thinking facilitates dialogue and fosters the consideration of policy alternatives. It does so by helping participants to transcend the positional politics that typically and necessarily accompanies the consideration of policy alternatives intended for immediate implementation. Freed from the encapsulation that immediacy imposes, futures thinking allows participants to explore possibilities collectively, consider the consequences of various possibilities, and test the boundaries of policy options under various conditions.

One form of futures thinking involves the use of scenarios that depict conditions twenty-five or thirty years in the future. Such scenarios have been used in the "Schooling for Tomorrow" project conducted under the auspices of the OECD. The project has sponsored the development of what is called an "operational toolbox," a set of "tools" to help policy makers and practitioners respond to significant changes affecting education. The intention is to develop capacity for the management of change in education and other public policy domains on an international basis.

The Second OECD Forum on "Schooling for Tomorrow," held in Toronto in June 2004, discussed results for an "inner core" of countries - England, Netherlands, New Zealand and Canada - that have participated in the project. The Forum reviewed and discussed the progress made by the "inner core" countries in using futures thinking in education. Part of my assignment included responsibility for observing the New Zealand Secondary Futures Project. New Zealand introduced three dimensions to its work that I found particularly interesting.

The first involved the use of Guardians, a group of four nationally recognized persons responsible for "protecting the integrity of the process and ensuring its autonomy from government as well as from short term policy and labour relations disputes. Second, New Zealand rewrote the original scenarios developed by the OECD in language designed to make them easily understood by the various audiences of New Zealanders who would be involved in workshops. In addition, New Zealand developed "character narratives" to enable participants to view the scenario from the perspective of various positions: student, parent, teacher, etc. This particularly useful technique allows those who use the scenarios to "walk in the shoes" of fictional New Zealanders. The "character narratives" helps participants to recognize that scenarios are likely to be viewed differently by persons occupying different social positions. A third element being developed by New Zealand to support its work is a "preference matrix," a device to enable participants to specify the desirable features of schooling options.

It is as true in education as in any domain that no matter how much a change is needed or wanted, if those who do the work do not want the change, the change will be unlikely to occur without significant

social or economic costs. Teachers, and the organizations that represent teachers, are often neglected in the consideration of policy changes in education, viewed as marginal to the change process, or seen in a negative light as obstacles to be overcome. It was refreshing to see included in the New Zealand delegation representatives of New Zealand's teachers. Attention to the perspectives that teachers bring to their responsibilities is particularly important, since educational change has often neglected to see and appreciate the process from the teachers' perspectives.

An implicit and largely unexamined assumption of the future thinking is the notion that educational change is an inherent good. Educational change is desirable only if that change is intentional. Too often the changes that occur are a consequence of circumstance rather than conscious deliberation. It is equally important to recognize that education is an essentially conservative influence that provides a stabilizing force in societies characterized by periods of rapid change in other spheres of human activity. Education helps us to locate ourselves in time and place and to understand how we are related to others. New Zealand included indigenous peoples among the "Guardians." New Zealand's Guardians ensure the integrity of the futures thinking process by recognizing the potential that futures thinking has for destabilizing societies contemplating changes to accommodate future conditions.

While still embryonic, futures thinking holds promise as a means for exploring policy options. As techniques are developed for bringing policy analysts and decision makers together to consider the future, it will be important to safeguard against a technical view of policy. By this I mean that some may believe that futures thinking will reveal "good" public policy. To state the obvious: What counts as "good" policy is a matter of the values one holds, not a quality of the policy itself. Nothing of value in public affairs is apolitical. In fact, it is the clash of values that gives rise to the need for politics and policy. Future scenario planning is useful for exploring the nature of value conflicts. But the technique will not yield policies that can be implemented without regard to the context in which the policies may be needed or to the values at play in those contexts.

Values are often incommensurable, making it impossible to realize the full expression of all the values held. Take five illustrative values - Universality, Productive efficiency, Equity; Accountability, and Flexibility – commonly associated rhetorically with education systems in many jurisdictions:

- *Universality* is concerned with ensuring that all children of school age are able to attend and benefit from public schooling.

- *Productive efficiency* is concerned with producing the maximum benefits possible for the given expenditure of public monies.

- *Equity* is concerned that expenditures are made to reduce gaps between identifiable groups of students (boys and girls, native-born and immigrant, Aboriginal and non-Aboriginal, rich and poor, etc.).

- *Accountability* is concerned with reporting to the public about how resources it provided have been used to achieve the goals of public schooling.

- *Flexibility* is concerned with permitting the widest possible latitude in decisions about the expenditure of funds. Although people might prize all of these values, all five cannot be fully realized simultaneously.

Observers have long recognized that "change" and "structure" are in tension. Structures and practices are supported by underlying values. Proposals for change carry the implicit repudiation of the values that

support the practice or structure one is proposing to change. A proposal to alter a practice or structure is also a proposal to replace the existing value or values with new ones.

One of the dimensions not fully explored in futures thinking is a specification of the values that support existing practices and structures. Different values are discernible in the various scenarios. New Zealand's attempt to develop a "preference matrix" is a useful and promising first step. Other jurisdictions should consider New Zealand's lead in devoting explicit attention to *identifying* the value differences and *comparing the ranks* attached to them in various scenarios. This process should lead to interesting insights about differences in the scenarios and a deeper understanding of the important part that values play in determining practices and structures.

I've noted that the futures thinking process is often employed to free participants from the spatial and temporal constraints that inhibit the consideration of alternatives. That is both a benefit and a liability of the process. Freedom from such constraints is likely to help generate innovative alternatives. That same freedom can also mislead participants into believing that one can arrive at a goal or destination without an appreciation of one's starting point. Change requires an appreciation of the temporal and spatial location in which one is situated and the factors that gave rise to the structures and practices one wants to alter. Dissatisfaction with a state of affairs is insufficient for bringing about change. In order to change the prevailing state of affairs, one needs an analysis of how that state of affairs came to be and the values that support its continuation.

Future thinking can help to develop capacity for technical analysis and understanding of systems – what some call "systems thinking." "Systems thinking" helps to inform policy development, but cannot and should not supplant the political processes of the jurisdictions that employ the technique. The factors affecting politicians are different from those that affect policy analysts. Failure to recognize and appreciate the differences can lead to unhelpful tension and distrust between policy analysts and politicians. Such a tendency might be mitigated by making explicit the discussion and ranking of values. It might also be mitigated by accompanying futures thinking with simulation exercises that put policy analysts and politicians into situations that demand their interaction.

11.2   Raymond Daigle

Do schools need to be reformed or reinvented?

For 15 or so years at least now, a number of industrialised countries have been implementing sweeping and costly reforms aimed at ensuring that future generations are adequately prepared for the new knowledge-based economy. In all the OECD countries, the expression "lifelong learning" and its many variants have been used to excess in all the official documents of the various bodies responsible for education at all levels. However, despite all these efforts, it must be admitted that these reforms have by and large met with only limited success. Although there was some real initial progress, these reforms have ultimately come up against a wall, or rather a ceiling, beyond which further progress seems impossible, leading increasing numbers of school administrators and educators to wonder whether schools do not need to be reinvented rather than reformed.

The fact is that reforming any public institution is a difficult task, and even more so if the institution is to be completely redefined. The task will be virtually insurmountable if the reform exercise is conducted by persons who are closely involved in the institution – which is the case of all of us. The truth of the matter is that, unfortunately, there are no other models available besides the one that we know. This exercise of reinventing schools and creating the necessary tools is therefore a daunting and complex task. It is for this reason that the OECD has designed scenarios in order to see whether they might not assist those responsible for education systems in carrying out this task. It must be pointed out that scenarios are not

familiar tools for educators, as they are not widely used outside military organisations and certain business sectors. However, given the inability of school reforms to make further progress, there was justification for trying this exercise and seeing where it might lead.

For example, one of the volunteer countries, the Netherlands, has in recent years adopted an innovative national policy for primary and secondary education that is currently being implemented on three fronts:

1. Central government's relationship with educational institutions: deregulation and greater freedom for institutions within more general central government policies.

2. Quality of education (learner-centred education, educational research, the social role of schools, their environment and setting) as a means of strengthening the economy and citizenship.

3. Training of teachers and school management to develop the educational leadership role of school heads and make the teaching profession more attractive.

Under this policy, networks formed in each sector are developing a four-year action plan starting from a commonly defined vision. In the course of this initiative, it appears that the scenario approach has been abandoned, those involved having found these scenarios too futuristic (too speculative and extremely long term) and at times contradictory, but chiefly because they found that these scenarios would not allow them to take action soon enough. This reaction is understandable given that the entire exercise is primarily focused on meeting the objectives set by the European Community for 2010, which are aimed at making Europe the most competitive knowledge-based economy in the world and ensuring its social cohesion. In this context, thinking about the future becomes much more immediate. A number of European countries present in my workshop also admitted that all their energies were currently focused on the European Community's objectives. What is more, not all countries have reached the same stage in this process. Each country's background, history, traditions and values significantly affect the approaches and procedures used and have a major impact on educational reforms. For example, some countries, such as Finland, already have long-term forward-looking mechanisms integrated into their parliamentary and governmental institutions that make the exercise considerably easier to conduct.

Although the thinking and reforms under way in the Netherlands appear to be very valid, extremely interesting, especially in their approaches and strategies, and solidly co-ordinated, they focus on the same major aspects of reform (pupil-centred education, educational research, indicators, measurement, leadership by school heads, teacher training, etc.) that a number of other countries have been targeting in recent years (e.g. the United Kingdom, the United States, Canada, etc.), and may therefore come up against the same obstacles. Consequently, this exercise has yet to lead to genuine long-term "futures thinking" and, above all, it has not resulted in a real re-definition or reinvention of schools. "We are tinkering at the edges", futurologists might say.

Furthermore, in listening to all the participants in the "Schooling for Tomorrow" project, we had the impression that most participating countries are encountering serious difficulties in actually using the scenarios, with some countries rejecting them outright as a tool, while others are content to work on the scenario or scenarios of their own preference, dismissing out of hand the other scenarios even though in some cases these are much more likely to occur (might this be a case of choosing to see the future through rose-tinted glasses?). Perhaps we should allow specialists more accustomed to working with scenarios than educators to share their expertise and experience with them (this seems to be the case more generally in New Zealand). Otherwise, there is a risk that at the end of the exercise we will reject the scenario method as useless or at best inconclusive, thereby depriving ourselves of a tool that might prove to be extremely

useful. This might be an initial concrete element for the toolbox. The Toronto Forum did not make it possible to reach a final conclusion as to their usefulness.

In the meantime, serious, large-scale efforts are under way, but which run the risk of having only a temporary and limited impact on education systems' capacity to prepare the next generation to work in the new knowledge-based economy. Cynics will say that it could be asked whether those responsible for educational reform did not find it very much in their interest to limit the scope of school reforms since they would have much to lose if the current systems were to disappear.

11.3   Walo Hutmacher

Consolidate the grounds for evidence-based future thinking

The inner core constituencies that participated in the second phase of the SfT programme have been very active and developed interesting projects and contributions. They also have quite legitimately introduced their own agendas into the programme. It is no surprise therefore that the different projects do not easily combine into a systematic pattern. This kind of future thinking is also rather new in the education sector and there is little agreed methodology. The understanding of future thinking may differ considerably across constituencies and among individual participants.

A common feature across the projects is nevertheless that, from the material published in the 2001 report "What Schools for the Future?", they have promptly adopted the scenarios and/or the scenario method. The published scenarios indeed cover a range of alternative futures: despite the fact that two of them only have been consistently considered desirable in educational circles, they were found useful to widen the intellectual horizon and the scope of future thinking. Some constituencies have elaborated new scenarios of their own.

The scenario method has been mainly used to sketch change or innovation agendas, be it to increase leadership skills of managers and school leaders as in England, or to discuss about "what secondary schooling should be like in the future" as in New Zealand, or to meet the "threat of assimilation" on the French minority language community as in Ontario. The wide range of the themes, by the way, underlines the diversity of specific needs and interests in future thinking in the education field.

There has been less work on and little reference to the analytical dimensions of the scenarios. With the exception of the Ontario project on teachers and teaching, there has also been little emphasis on clarifying or deepening our understanding of the major trends and forces that underpin the change of education systems, of schools and of education policies in relation with the change of society, culture and economy. Overall, the culture and practice in education systems seem to find it difficult to take the time needed for a non-normative and systematic description and analysis of different possible futures, and the considered argumentation of their likelihood in the light of societal change. Most projects in the second phase actually seem more interested in desirable futures than in possible and likely futures. What should or should not happen seems more appealing than what might happen.

Of course, any debate in the education field ultimately challenges values, often conflicting. Historically, this has always been the main thrust of the debate about the future of education and schools, opinions and wishes opposing other opinions and wishes. The debate about values will also remain in the future. But the new brand of future thinking which the SfT program aims at developing differs from that tradition mainly by adopting a two-stage approach. The first question here is not "what future do we wish?" but "towards what future does or might the education field move, considering recent and/or likely economic, technological, cultural and societal developments?" In other words, while the desirability debate is certainly supposed to take place, it should do so at a second stage only and on the basis of a prior

systematic effort to explore possible futures and their likelihood. It should do this on premises that remain as descriptive, analytical, arguable and non-normative as possible.

The basic assumption is indeed that education systems and schools are actually changing and will change in the future, that they are actually heading somewhere, because their environment changes. A better knowledge of societal, demographic, cultural and/or economic trends and forces in relationship with education in families, communities and schools should help identify with better accuracy this "unplanned" or "spontaneous" but nevertheless real change that is occurring, its likely impact on schools, their possible and likely ways of coping with what confronts them, etc..

For the future of future thinking, also within the SfT programme, it seems important therefore to identify and discuss more precisely the configuration of social, cultural and economic trends and forces that contribute to the change of the education field at the levels of constituencies, institutions and organisations. The chapter on trends and driving forces and several expert contributions in the second part in "What Schools for the Future" gave a first flavour of such a knowledge base. They have loosely informed the dimensions that structure the scenarios. The Ontario project on teaching presents another very interesting contribution in this direction. But overall, this more conceptual basis has not been at the forefront of debate and work during the second phase.

This CERI programme has the mission to elaborate a framework for future thinking in the education field that is useful across countries. The quality of this framework will depend on how much effort goes into clarifying, deepening and refining the conceptual grounds we build upon. Plans for the third phase of the project should certainly concentrate part of the work on developing a more robust (minimal, sufficient and arguable) conceptual framework and the related empirical knowledge base that are able to shed light into the complex relationships between economy, society and education in families and in schools.

11.4   Hanne Shapiro

"…when the sea was calm all boats alike

Show'd mastership in floating…"

Shakespeare, Coriolanus, Act IV, Scene I

The main function of schooling as a social system is to prepare our youngsters for the future- in many societies schooling is seen as the means to bring about a better future for the next generation. Yet educational policies seldom lead change, but are rather a response to change in the social and economic construct.

Setting the Stage

This paper is based on reflections on the Toronto seminar on the Futures of Schooling. During those days I had the immense privilege of being rapporteur for the England workshop; but the paper is also based on wider observations of group discussions and presentation throughout the seminar. The experiences of the inner-core countries can provide valuable input to further progression of the Schooling of the Futures Project, which in its next phase can be expected to expand along a number of dimensions including participation of more countries. The insights from the seminar can also be valuable to anyone grappling with difficult questions concerning innovations in schooling and learning systems.

The Schooling Topography

Many countries are currently trying to deal with a number of challenges and requirements facing schooling systems as a result of wide societal changes and uncertainties related to the direction and outcomes of those changes. Examples of tensions are:

- Schooling as an institutionally-based social system versus more fluent and broader lifelong/life-wide learning systems.

- Requirements for increased system performance and efficiency versus an increased focus on entrepreneurial and creative values which are unlikely to thrive in systems with very strict approaches to performance measurement.

- Equity and inclusion demands versus the view of schooling as one of the prime instruments for increasing competitiveness.

According to Edquist and Johnson (1997), schooling systems can be considered as social systems with specific institutional and organisational constructions. Social systems are designed incrementally to reach societal goals:

- Institutions can be defined as sets of common habits, routines, rules, or laws, which regulate the relations and interactions between individuals and groups. Functions of institutions are, for example, the provision of information and the reduction of uncertainty; the managing of conflicts and cooperation, the provision of incentives, and the channelling of resources.

- Organisations are formal structures with an explicit purpose; they are consciously created and can thus also be changed as a result of social action, and they are players and actors in the system and can as such also be in opposition to change, particularly if traditional privileges and power structures are threatened. (Neuwenhuis and Shapiro 2004, in press)

Education and the broader notion of schooling as a social system have developed over a long period of time in each country and/or economic sector with specific sets of institutions and organisations. Governments, educational organisations, communities, business and industry, and unions, have constructed an institutional set-up for education and schooling which in many instances has undergone so little change so as to become ossified, deeply rooted in already existing social, cultural, and economic patterns. Because of these roots, educational institutions and practices are difficult to change, and are sometimes even obstacles to innovation of the broader system of schooling and learning.

The embedded systemic resistance to change, as well as the uncertainties relating to changes in the outer environment and the impacts those may have on the future of schooling, are the reasons that policy making on the future of schooling cannot be treated as a straightforward linear process. This is also why policy making should adopt other more qualitative methods for engaging with alternative realities of the futures in a manner that can bring us out of perceived realities and urgencies of action.

The *raison d'être* for engaging in the future of the schooling voyage is not to get strategic and operational guidance on how to travel from A to B - your preferred neighbourhood destination - in the shortest period of time. Rather, through futures thinking, participants embark on a voyage of exploration into unknown areas and beyond - and into possibility space. Like Alice in Wonderland when she falls down the rabbit hole, you soon realise that conventional wisdom and solutions are not going to be much help.

First Observation

Scenario-analysis should be regarded as a tool for insight and a catalyst for strategic discussions and reflections on policy dilemmas, but not as an end in itself for policy implementation. The connection between the use of futures thinking for questioning and exploring challenging policy questions, and methods relating to creative strategic policy implementation, should be explored further in the next phase of the schooling for the future project.

This in turn brings forth the question of why some of the countries have felt a need to adapt the schooling of the future scenarios to their particular purposes. Is it because the scenario process is understood as a useful tool for incremental innovation, rather than a methodology for exploring and reflecting on possible futures? Or is it that the process of analysing trends and drivers leading up to scenario construction at this stage is not sufficiently comprehensive and not sufficiently understood as a precondition to the scenario process itself. Or does it reflect a need for the toolbox to comprise other types of tools that can be used to guide operational implementation short term?

Newer research on strategy for entrepreneurial environments and in the context of science-based regional innovation systems has explored new approaches to strategy by viewing it as magic and invocation (Berg, P.O., 2003)..

Second Observation

The operational work in Schooling of Tomorrow is thus not about the specific scenarios. The experience from Toronto suggests that the problems-formulation phase- the questions that are to be addressed through the scenario work – should receive more attention. In addition, a futures initiative should not merely be a comfortable ride in a relatively known local neighbourhood, but should bring participants to areas they never imagined might exist; prerequisites for this are a consistent and wide-ranging environmental scanning (of both the outer world and the nearby, but not merely of the inner world), and a structured analysis of trends, drivers, and uncertainties and forces relating to these trends.

A methodology such as TAIDA is an example of how approaches to trend spotting and trend analysis can be expanded as part of the box of methods in its future developments. The methodology suggests use of the EPISTEL+ M framework for identifying trends to ensure that you scan in a systematic and comprehensive way. EPISTEL+M is a way of clustering trends: E= economy; P=politics; S=social values; T=technology; E= environment, health; L=legislation + M= media and ideology.

Furthermore, trends are viable for a certain amount of time; otherwise they are fluctuations and may have little impact in the long run. Trends have a direction: *more, less, the same*, and they have a degree of certainty/uncertainty. Given the tendency to move too quickly into a preferred scenario, it might be helpful if the project identifies different methods of analysing trends - i.e. cross-impact analysis, mapping of trends according to the level of importance and level of certainty with regard to the question addressed in the given scenario exercise.

Second Observation

Changing schooling and education is not only a matter of changing the educational system, but also a matter of innovating wider socio-economic system, cultural mindsets, and governance frameworks. This is an important observation for understanding the design and revitalisation of schooling systems. Policies for change cannot be organised top-down (Bashkar, in Sanderson, 2000). Change in schooling has to be directed simultaneously at all involved levels. Interactivity and consistency between the different layers are main requirements for systemic change. The government and its administration is but one of the players in

a complex policy system such as schooling; so are schools, teachers, parents, unions, and other policy domains, all fighting for attention in the battle of scarce resources.

This could indicate that futures thinking should not only involve educationalists within the social system of schooling, but also other actors from the broader socio-economic environment with different mindsets and backgrounds, so as to avoid being captured by conventional wisdoms about what lies ahead and to ensure a wider horizon and unconventional questions throughout the whole process. New countries initiating futures thinking as part of this international project could consider this approach.

Third Observation

Systems change is not a one-shot event. Change in most social systems is an on-going process of incremental development, sometimes combined with earthquakes (dissipative systems: absorbing a lot of change-impulses without any change; then disrupting in a large change; see Sanderson, 2000). Changing a system is a time-consuming endeavour, especially because of institutional embeddedness. Reasons for change can be endogenous and exogenous. Systems change is complex and chaotic because of it is multi-layer, multi-actor, and multi-purpose.

Process competencies are therefore central to facilitate a futures activity. Scaling the Futures of Schooling initiative within particular countries requires a guidance and process training package - such as the one UK has started to develop - that should be a component of the tool box. In a well-facilitated process such as I experienced in the UK workshop, different actors can come into play through a futures process despite different backgrounds and mindsets. Through this process they may explore the outer galaxies (environmental scanning) and discover how they are actually part of the sun-earth interaction (the schooling system). Managing this process is like directing a large orchestra; if one player is out of tune, the whole performance is endangered.

The use of metaphors is another essential component of a successful process in order to avoid being trapped in current realities and concepts. A simple methodology to encourage participants to break with their traditional roles is the use of "hot chairs" - where participants are required to take up another character role. This method is simple, efficient, and fun, as the UK workshop illustrated.

Thoughts on the concepts of *performance text* (Collins, 1990) derived from ethnographical studies and theatre may be useful in reframing and in invoking futures thinking processes. Through the act of co-participation these works bring the audience into and revitalise the space of action. A good performance text is not about catharsis. Like Bertolt Brecht's *verfremdung* technique, so brilliantly illustrated in *Mutter Courage*, "it must move people to reflection, allowing to co-construct meaning for as a precondition to action" (Denzin 2000). Performance texts have narrators, drama, shifting points of view, anchoring in our head and heart a possible and plausible future in our current realities so they may speak to our actions of the future. "These are storied stages that seeks the truth of life's fictions via evocation rather than explanations" (Denzin, 2000). Performance texts are situated in a complex system of discourse and representational forms.

Fourth Observation - Futures Thinking for Policy Change

Studies on the nature of policy change have traditionally taken their point of departure in the so-called policy cycle where the policy process is analysed as set in different distinct stages: decision making, implementation, and evaluation. The learning approach to policy formulation as brought forward by researchers such as Lundvall and Dosi criticises this assumption because it does not provide a thorough account of what happens after the decision-making phase and it tends to perceive change as something automatic that follows the political decision making process (Lundvall, 1997).

The learning approach on the other hand provides a more fluid perspective on the policy process in continuous transformation and evolution where no clear stages can be discerned.

> "In the political environment of public management learning processes are particular difficult to create and maintain. A critical task of public management is to build institutional learning capabilities within the system of actors. Conventional policy processes often block learning because ideology overrides evidence or vested interests resist. Therefore policy makers should be concerned with designing adaptable systems innovation systems - rather than producing blue-prints for specific reforms." (Metcalfe, 1993, quoted by Lundvall, 2000)

One of the advantages of using futures thinking for policy purposes is that it can create an arena where the same plot (schooling of the future) may be enacted through quite different scripts and with a stage populated by different characters and acting methods.

This is precisely the purpose of the Schooling for Tomorrow approach. Through narratives and dialogues that speak to both head and heart, the Toronto workshop has illustrated how the different methodologies may function as props that can further critical and creative reflection and revisualisation of a policy question ahead of us, rather than falling back on a traditional, one-dimensional and linear decisions making process. This understanding of futures thinking as a multi- actor learning and visualisation process is central to the next stages of project's development, where broader issues concerning governance and underlying values around the knowledge economy and learning society should be addressed

Epilogue

> "He who never leaves his country is full of prejudices" Carlo Goldoni (1703-1793), Pamela I, 14.

In the 1950s the United States invested heavily in order to be the leading country in transatlantic transportation. The *SS United States* was regarded as an imminent success and positive sign that the development was heading in the right direction; the speed of sea transportation was increased by a couple of miles per hour. Shortly after, the first commercial jet went in the air, and the previous so-important record for which enormous resources had been invested was suddenly reduced to only a minor role. The story can be likened to a situation where we only rely on measuring and benchmarking properties of knowledge acquisition – codifiable and viewed as important of today - and risk ignoring other components of knowledge acquisition and learning that may be vital to our societies of tomorrow.

Can we afford unilateral thinking about our schooling system which in most cases at best will lead to incremental improvements? Currently there is much policy debate about the emergence of a so-called knowledge economy or learning economy - relatively undefined terms used to cover an extreme range of phenomena and understandings. Do we therefore need a much more radical, proactive, and experimenting approach to the development and governance of our learning systems with a broader involvement of actors than we traditionally see within educational policy formulation processes?

The Schooling for Tomorrow project has proved itself successful to date in involving school leaders, teachers, and parents, in envisioning change. The next stage of the project will need to address more deeply how the methodologies and the tool box can also engage policy-makers in critically and creatively exploring medium-term policy choices and dilemmas, given that policy constituencies most often will judge the success of policy makers on short-term successes which may fix a particular bolt but not lead to safer, faster, or cheaper forms of transportation. This is the challenge for the Schooling of Tomorrow project.

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