The Re-birth of Mass Education:
The Coming Rise of Starfish Systems of Schooling

If a modern Rip Van Winkle had gone to sleep in 1908 and woken up in 2008 he would be bewildered and disoriented by the technological, economic, and social changes in the world. I am amazed by YouTube, streaming video over the inter-net on computer, but Rip would not have seen television. I am amazed at the rise of outsourcing that moves service jobs to remote locations thousands of miles away, but Rip would not have experienced the decline of agriculture. I am amazed by the decline of Anglo-Saxon/European heritage as the majority in many cities in America and amazed (and pleased) we have an African-American President, but Rip would not have even seen the end of segregation.

Overwhelmed and bewildered, where could our 1908 Rip go in 2008 to feel right at home? School. He would recognize the buildings, he would recognize the classrooms, he would recognize the content, he would recognize the organization inside the classroom, the pattern of the day, the internal organizational structure of the school itself (a headmaster and teachers). Even more deeply, he would recognize the overall *system* of government owned and operated schools.

Modern travelers in the world are often struck by the differences in flavors, in colors, in culture, in language. Overwhelmed and bewildered, where can a traveler go to feel right at home? School. I have been in classrooms in more than a dozen countries, in cities and in the poor rural areas, and while the foods people eat, the way they dress, the work they do varies enormously, schools are amazingly the same. Even more deeply, the structure and *system* of schools, how they are run and governed, is often a direct copy of other systems.

The legacy systems of large scale government production of basic schooling which span the globe, as central as they have been in the social, political, and economic developments of the 20th century, are now obsolete. The enormous centrally controlled school bureaucracies that grew in the West in the nineteenth century and were transplanted and adopted around the world and hence now dominate education systems in nearly every country are organizational dinosaurs. Their basic patterns of organization and operation have not changed significantly in over 100 years.

The economic, political and social conditions to which these legacy systems were once well-adapted either have changed or were never really present. There is increasing mismatch between the *education* that children need for the world they will face and the limits of what the existing systems of schooling can provide. Not just the content of the curriculum or the pedagogical techniques but the *systems* of schooling must evolve for education to be reborn.

There are many ways of describing the two fundamentally different approaches to how systems are organized and different authors proposed different organizing metaphors: from “top-down” to “bottom up”, from “centralized” to “localized”, from

"high modernism" to "metis" (Scott 1997), from "planners" to "searchers" (Easterly), from "teleological" to "emergent", from "central planning" to "high bandwidth" (Hausmann). The metaphor I use is that of Brafman and Beckstrom (2006) who contrast the "spider" with "starfish" organizations[1]. A spider uses its web to expand its reach, but all information created by the vibrations of the web must be processed at the center of the web, decisions made, and action taken by one spider. In contrast, a starfish has no true brain or central nervous system, but is a radically decentralized organism with a loosely connected nervous system. In some species of starfish this means that a single cut-off arm can regenerate into an entirely new starfish, or that a starfish can grow back arms lost to predators.

The legacy systems look nearly identical because they are almost exclusively large, government owned, spiders. The *systems* needed to reclaim education from existing schooling are starfish systems—systems in which the center gives up on trying to control every school, ever school head, and every action of every teacher in every school and instead radically increase autonomy. Instead of searching for the "One Best System" (Tyack 1974) to be propagated from the spider to the rest of the web, in starfish systems schools can be freed to adapt, to experiment, to diversify, to tailor their pedagogical approaches.

Being a starfish system alone is not all that is needed. To generate high performance schooling systems that match the current economic, political and social goals in the variety of contexts around the globe, basic education needs to move towards *structured, pressured, supported, starfish* systems of schooling.

While the book will be at points analytical, abstract, technical, and empirical, my motivation for writing it, and I hope the reader's for reading it, is a concern with the very concrete situations of what children confront in the schools available to them. While I will not interject myself into this book at every opportunity, I will share just three of my own experiences.

In 2006 I visited villages in rural Uttar Pradesh, one of the poorest places in one of the poorest states in a rapidly growth but still very poor country, observing a research project in which outside facilitators would test school children's very basic competences—such as whether they recognized the letters of the Hindi alphabet—and then report on the results at an open village meeting with parents, the headmaster, and local village officials. In this village, the results demonstrated that a significant plurality of children who were in third, fourth and even fifth grades could not read a simple passage and could not carry out basic arithmetic operations.

[1] Brafman and Beckstrom (2006) propose nine criteria to distinguish "centralized"from "decentralized" modes of organization: is there someone in charge, is there a headquarters, if you thump it on the head does it die, is there a clear division of roles, if you take out a unit the whole is harmed, knowledge and power are concentrated, the organization is rigid, units are funded by the organization, you can count the participants, groups communicate through intermediaries.

One parent stood up and said to the headmaster: "You have betrayed us. You told us that if we kept our children from the fields and sent them to you that school would prepare them for a brighter future. Instead my son has learned nothing and will end up just like me." Even as an outsider to the village but as someone who has worked on education and education policy the words still ring in my ears: "You have betrayed us."

Literally at this discussion was going on a rickety old vehicle drove by, loaded with children in school uniforms. This was the "school bus" of the local private school that had opened up to attract the parents dissatisfied with the government schools. This was the starfish—unregulated, unsupported, pressured only by parent demand—responding to the failures of the spider.

In 2008 I was invited to visit a very high quality and well managed institution of higher education specialized in engineering and the sciences in Mexico, which was rightly concerned with the institution's ability to produce world-class graduates. Before traveling to Mexico, I looked at the data about the quality of basic education. An international group had administered examinations to groups of 15 year olds around the world to assess their competence in applying what they had learned. This testing identified an "advanced international benchmark" in competence in mathematics, a level achieved by roughly the top 10 percent in OECD countries.

My rough calculations were that less than 6,000 of the two million 15 year olds in Mexico reached the advanced benchmark in mathematics competence. The USA, in spite of all its flaws (see below) produces a quarter of million students a year above this level. The raw material for entire country of Mexico's future globally cutting edge engineers and scientists, students emerging from basic education with advanced competence in mathematics, can all fit in a small auditorium.

Sharing these results with my Mexican colleagues was awkward, as they would quickly realize the implications for someone trying to produce global quality higher educational outputs with this quality basic education inputs and go through the five stages of grief, starting with denial. After reaching acceptance, the question was: "What are we to do?" I had no answer. Within the existing systems there is no empirically demonstrable path from where the learning performance they have to what they want to have.

Finally, my wife is a director of music in a school district in the Boston area that is an example of the persistence of America's starfish approach of locally controlled schools. In the Boston area each small town has its own school system which operates independently. This allows a great deal of community input into what the school does, and this school has both deliberately maintained many traditions as well as a variety of programs.

There is a widespread view that America had been stuck on a plateau of performance for many years. The assessments that tracked the learning of American teenagers, the NAEP long-term trend studies on reading and mathematics find that, on a

scale score basis the reading scores of American 17 year olds in 1971 were 285 and in 2004—33 years later—were exactly the same, 285. In Mathematics things are only slightly better, as the scores of 17 year olds in 1973 were 304 and in 2004 were 307. When one thinks of the enormous changes and economic and technological progress between 1971 and today it has been shocking to think that a parent and their child, 30 years apart, apparently facing enormously more complex worlds—have exactly the same basic skills in reading and mathematics.

The No Child Left Behind act was in part a response to this. But rather than taking advantage of, and expanding on America's traditional diversity it created an enormous direct Federal influence into school decision making. Moreover, rather than being focused on *increasing* local accountability by providing information about performance to parents, it actually mandates that states adopt performance standards. This creates a pressured system—in the wrong way, around the wrong objectives, without giving greater autonomy to schools or school systems. In locales, like the affluent suburbs of Boston, where the mandated performance standards have been met as a matter of course for decades this is distorting the school's choices away from greater attention to skills beyond the basics that parents want for their children.

Moreover, there is absolutely no evidence that this "back to basics" attempt to override locally democratic accountability mechanisms with federally mandated standards is actually focused on what students actually need or want to thrive in the post-modern economy.

I build the case for the transition from large government owned spiders to structured, pressured, supported, starfish systems in three sections: historical, analytic, and application.

To understand the direction we need to head and how to get there we have to understand how we got to where we are. Why do we have the systems we have?

In the world's rich countries the legacy systems of schooling are not failures, the failings of spiders are the result of their fantastic success creating an environment in which they are now obsolete. The success of modern schooling was the result of a perfect fit between publicly produced mass schooling and the historical four-fold process of economic, political, organizational, and social modernization. The government school systems generated overwhelming consensus because it met the political and social needs of emerging nation-states, the economic needs of industrialization, and the organizational needs of the rise of large scale structured institutional forms in the private (e.g. corporations) and public (e.g. military) sphere. The overlapping pressures of this new environment between the turn of the century and the apex of industrial capitalism and nationalism in the 1960s produced the legacy systems nearly all countries now have: the government owned spider (large, top-down, government production).

The usual approaches to schooling don't actually answer the key questions. Why did governments *produce* schooling rather than simply finance it (as they did with many

other services)? Why the extraordinarily large and centralized systems? Why, at the same time schooling was expanding was there a deliberate elimination of citizen engagement and reduction in the local control of schools? While there was a confluence of forces, the *decisive* element in the emergence of government ownership of schooling was the desire of nation-states (or state power) to control the socialization of youth. I will show that, while all other goals of schooling can easily be achieved without government ownership, the inability to assess the impact of socialization or control socialization with an arm's length contract meant control could only be achieved with direct ownership. The many benign reasons for the vast expansion in the public sector support of schooling—and its benign effects--cannot explain the *structure* of government support.

Understanding the origins of government owned spiders as a contest for control of socialization is essential. Successful institutions have powerful foundational myths, and mass schooling is no exception. The powerful foundational myth of mass schooling—that government owned spider systems are the result of benign governments seeking to educate their populations in a pedagogically sound and technically efficient way—set nearly all discussions of schooling reform off on the wrong path. A certain amount of dismantling of myth, seeing clearly the man behind the curtain, or "deconstruction" if you will, is a necessary prologue to any discussion that goes deeper than how to control the spider (what should be taught? how?) to system change itself.

Having understood the historical causes of the amazing rise and life of modern schooling systems, there are two necessary analytical distinctions.

The first is among country situations. As Tolstoy said of families, every unhappy schooling system is unhappy in its own way. The coming deaths of spider systems will come from three very different causes, depending on the country's current trajectory in what was at one point thought to be the four-fold path modernization. Countries are today, in three positions in the four-fold modernization.

- *The F-States: Failed, Flailing, and Forcing*. Sudan, Afghanistan, Myanmar, Pakistan, Cambodia. There are places in which none of the four transitions (economic, political, organizational, and social) has taken firm hold. In addition to these "failing" are others that are "flailing" in that they have made some but not others. India, for instance, is having spectacular economic success and has a continuously functioning electoral democracy, but is flailing in organizational capability. Finally, there are states that have administrative capability but have yet to develop means for the citizens to effectively control the state and hence the state still forces citizens rather than vice versa.

- *Post-modern societies.* At the other extreme of the F-States are the rich industrial countries that have moved on from "modernization." In each of the four areas of economics, politics, organization, and society there have been, since the emergence of the "modern" from a "pre-modern" phase, sufficiently new and pervasive changes

that their current situation can only be described, in spite of all the freight the term carries, "post-modern."

- *Modernizers*. In between are the modernizers, countries who have made fundamental progress along the four-fold path, Turkey, Hungary, Brazil—but who have yet to fully consolidate modern status. These can be broken into two groups, the *stalled* modernizers and the *nearing* modernizers.

The second analytical discussion is to describe a starfish schooling system means. The school as an institution and spider systems of organizing schools into larger units has been so successful in grabbing hold of the imagination, people think of the "school" and "school system" as the natural, or even only way to organize instruction. But the "school" is merely one of many possible ways of organizing instruction and a large scale "school system" is only one way of organizing schools. Actually, the activity of instruction is usually carried out in starfish systems and the spider system for mass schooling is the anomaly.

Start with a trivial example: piano lessons in the USA. Suppose you or your child wants to learn to play the piano. There is a huge array of options. You can take private lessons from an independent private teacher, you can arrange lessons from a local music school, you can take group lessons, you can buy a book and teach yourself, you can take an online course, or you could just buy a piano and tinkle around. This is a starfish system as the parts are interconnected very loosely. There is no central coordination of this. There are associations of music teachers, but no requirement an person offering piano lessons join. You can find out about piano teachers by word of mouth among your social network, or trial and error, or, now, on the internet.

Organizing the process of teaching and learning as a spider—a large hierarchical organization with multiple units—is a complete anomaly in the world of instructional services. Start with piano lessons, but then about the huge variety of learning experiences you have had. Maybe you have taken lessons in a sport, like learning to swim—starfish. Maybe you attended religious instruction (Sunday School or Bar Mitzvah preparation)—starfish. Maybe you learned to drive—starfish. Maybe you got trained in a variety of occupations that require licensing (such as real estate agent or barber or plumber)—starfish. Maybe as an adult outside of school you learned a foreign language—starfish.

You might be thinking: he cannot really be proposing that basic schooling should be more like piano lessons? Basic education is meant to be universal, to establish common standards, to achieve directed social goals. We cannot just allow "anything goes" and expect to have good outcomes.

This is why the alternative to government owned spiders is not just a starfish (after all, the starfish systems are what emerge where there is no structure or support at all). The alternative to a spider system for basic schooling is a Structured, Pressured, Supported Starfish system. What do those three characteristics mean?

Structured means the entrants into the system are regulated in some way. Unlike the unstructured starfish systems of instruction, like piano lessons, a structured systems sets down requirements of who can enter into the practice of providing schooling—but entry and exit within those rules is open.

Pressured means that the units survive or expand to the extent they perform well and contract or disappear when they perform badly. Evolution is the description of the operation of a pressured system. The pressure is survival. Organisms that can respond to the pressure increase their survival value grow in number, those that are ill-adapted or cannot adapt decline. This does not mean there is pressure for sameness—evolution has produced millions of species that run the gamut from single celled bacteria to whales and elephants. The surviving species share nothing in common: not size, color, shape, diet, mode of reproduction, or survival strategy. The only thing they share is that they do survive the pressure of limited resources and have found some niche in their eco-system.

Supported means that the agents in the system: schools, teachers, parents/students are supported through some type of public spending. This support can flow to the students or directly to schools, or to schools on the basis of enrollment, or to schools on the basis of enrollments and performance.

The nervous system of a starfish does not control each element but rather organized flows of information and resources across autonomous units. This allows the components of the system to act autonomously, each unit taking advantage of dense, textured, knowledge and innovations. Progress towards goals is driven as an emergent property of an evolving system created by pressures of the units to thrive in their environment.

Post-high school education in the USA is a structured, pressured, starfish system. This is a pressured system as students have complete choice over where to apply, and for the most part, attend, college. They can attend a prestigious four year residential college or a local junior college; they can do vocational training or a liberal arts degree. They can attend part time to full time, adults can enroll in classes piece-meal. All of this creates pressure to attract students (and hence revenues. This creates pressure for information and so there is a thriving business in ranking and providing information about student's choices. All of these pressures create both excesses (e.g. gaming the ranking systems) but also real concern about quality.

Higher education is also supported, in a variety of ways. Part of the support is that individual states operate their own universities that receive public support—but these are always in competition and comparison with the local private counter-parts. A large part of the support flows directly to students through targeted grants and a regulated loan program that ensures financing to any student (including for very low quality institutions).

There is very little structure to this starfish. The universities themselves are part of accreditation networks.

This system has produced exactly what would expect a starfish system to produce—a huge array of variety and a constant stream of innovation as the pressures of the drive to enroll students cause programs to wax and wane.

America's higher education is the best and the worst. In any ranking of the best universities of the world America predominates. According to the ranking by a think tank at a Chinese university 159 of the world's top 500 universities are based in the USA, the ranking by the Times Higher Education says 56 of the top 200. This is not because America has a stronger system of basic education than other countries. Rather, because the system is so pressured for performance at the top, American universities attract talent from all over the world. Globalization is not a new phenomena in higher education. In my graduate education in economics at MIT in the mid 1980s I learned from many great professors born in the USA but also Austrians (Dornbusch), Frenchmen (Blanchard), Italians (Modigliani), Israelis (Helpman), Brits (Hart, Hahn) and a professor born in Zambia (Stan Fischer).

At the same time, the consequence of variety is that the low-end is low. Many of the two year institutions are barely glorified high schools.

Since there is no top-down control there is the space for new entrants. Phoenix University is a for-profit university that was founded in 1976 and now has over 300,000 enrolled and more than 200 campuses.

Starfish systems doesn't mean making basic education look more like piano lessons, it means basic education more like structured, pressured, supported starfish systems. Of course, American higher education is far from perfect, but it illustrates (as will many other examples below) that starfish systems are perfectly feasible in practice and will outperform in some areas and raise concerns in others.

It also raises the right set of questions—which are about aspects of the *system.*

- Is there too much or too little *structure* in determining the range of potential providers? Is entry too east? Too Hard?

- Is the amount of *pressure* in the system furthering the right set of objectives?

- Is the amount and pattern of *support* into the system well designed? Is funding directly to students too much based on income and not enough on merit or vice versa? Is too much support going directly to providers and not enough through students? Is support for university based research too concentrated or too diffuse? Is research too commercially oriented to too much to basic science?

This is thinking about design of the system of schooling, in which the individual schools and teachers operate, rather than thinking about the spider should make schools do.

What would a structured, pressured, supported starfish system for basic education look like? There is no one way to put the pieces together and there are fundamentally different ways to think about the structure.

- *community controlled* schools in which groups of parents, affiliated with the local-most level of government, were free to open their own schools (subject to some requirements) and attract students to the school.

- Allowing *private providers*--both for profit and non-profit—to provide schooling, with some formula for how public sector mobilized resources follow the student.

- Allocate control to very *small governmental jurisdictions*—not quite school by school autonomy, but something close to that.

- Use of "*charter schools*" in which entry is strictly regulated, but schools (still within the government sector) are allowed much greater autonomy.

	More Central Control					Less Central Control
			Money follows the student systems			
	Government owned spiders	Locality level de-centralization	Charter schools (only public sector entrants)	Community controlled schools	Private (for and/or not-for profit entrants)	Pure markets for instruction (e.g. tutoring)
Structured	Yes	Yes	Yes	Yes	Yes	No
Pressured	Mixed	Mixed	Mixed	Mixed	Yes	Yes
Supported	Yes	Yes	Yes	Yes	Yes	No
Starfish (autonomy at school level)	No	Mixed	Yes	Yes	Yes	Yes

All of the starfish-like systems have several features in common.

First, the locus of control of the direct management of the school is pushed as low as possible. This is not to say each school in the system gets to do whatever it wants, as many aspects of the system will remain centralized, but *the school* (or small set of schools) becomes the primary focus of control, identity and management.

Second, schools must be allowed to enter and schools must be allowed to innovate and establish their own identities and education strategies. The emergence of diversity is key to improvements.

Third, the pressure in the system—what encourages new schools to enter and existing high performance schools to expand and poorly performing school to exit—is key to the improvement in performance. A low pressure starfish system can create inequality with no impetus for improvement. This implies that the centralized power of the state over schooling does not disappear, but rather than direct control it creates the flows of information to create pressure. Parents and students are provided with the maximum amount of relevant information to generate adequate external accountability.

The final section of the book examines the case for the transition from spider to starfish. The answer is not uniform, but rather, there are three distinct problems faced by the F-States, the Post-Moderns, and the Modernizers.

Spider and Starfish Systems in F-States: Dead Spiders fail completely

In many countries around the world the government owned spiders have betrayed—or even worse, coerced--their populations. Governments have either failed to provide even a minimally adequate education (e.g. India, Pakistan) or have done so at the expense of liberty (e.g. China).

When the spider system fails and the government does not prevent it, a parallel starfish system develops as alternative—with private providers both of high quality high cost schools, ideological extremists, NGOs, and for-profit bargain schools (not to mention non-schooling instruction like tutoring). Chile moved to a money follows the student system in 1981 that structured and supported private schools and enrollments outside of the government are almost 50 percent. In India, even with no structure and no support (and in fact many barriers) the fraction of children in urban areas not in government operated schools is now higher than Chile—dysfunction beats privatization as a route to privatization.

This means that huge gains are available to simply expanding the support to available alternatives—especially if this support leads to gains in structure and pressure. In Bangladesh most secondary schools were male only. The government introduced a scheme of scholarships for girls that could be used at non-government schools. Skeptics thought this would not work as there would not be enough supply for the girls to use their scholarships. Skeptics were wrong (and cynics right?) as schools quickly became co-educational to accommodate the girls with scholarships.

Yet donors and governments continue to press the F-states to build out their own spiders rather than tailor systems more attuned to the needs of today and the exigencies of the place.

Spider and Starfish Systems in a Post-Modern environment: Stuck on a high plateau

Successful spiders cannot adapt to the world they helped create. The same features of government owned spiders that made them such a fantastically well-adapted institutional

innovation at the beginning of the 20th century—control over socialization to promote nationalism, bureaucratic ordering to inculcate fit into modern organizations, and minimal skills for the transition from agriculture to industry--put it out of touch. The three grand forces of the 21st century: a resurgence of the local and embrace of diversity continued globalization, more flexible organizations and a post-industrial economy with a premium on the "new basic skills" (Levy and Murnane). It should not be too controversial to acknowledge that systems of schooling that emerged and took their present shape in the late 19th and early 20th century should be ineffective in preparing students whose economically productive lives will last pat 2050.

What is perhaps controversial is my emphasis that the *system* is obsolete, not the schools. The failure of the spider system to be able to innovate to meet the future needs is not happenstance, the systems of schooling were designed precisely to *prevent* the emergence of what is needed in the future. There is a fundamental incompatibility between schooling systems designed to suppress the local and idiosyncratic in favor of the mass and common, to emphasize obedience over creativity, to inculcate loyalty over critical thinking and a pedagogy that prepares students for the coming society, polity and economy. The system will do what it is designed to do and will be successful, as it has largely been, from the time of Dewey to today, in preventing piecemeal innovations at the school level from scaling up to affect the system.

The arguments for starfish systems in the post-modern countries, which all possess effective control of their administrations and hence can operate effective schooling systems to address basic learning, is not that they will be a little bit better at teaching reading. The argument for starfish systems in post-modern environments is to allow diversity as a way to create effective the new skills needed.

If you can be completely objective about your objectives then you don't need starfish systems. Spiders are good at logistics. Spiders are good at uniformity. What spiders are not good at is finding the right thing to do when the environment is complex, uncertain, and heterogeneous and promoting creativity and diversity.

Spider and Starfish Systems in the Modernizers: Stuck at the bottom of a flat bowl

The one place it might seem ideal to continue with the government owned spider are the emerging economies who are not poor and failing, but rather middle income and trying to catch up on the rich countries.

Examining the data on the existing outcomes of education measured by learning, there are two distinct sets of countries.

Lagging performance. Most of these countries are, like the Mexico example above, far behind the OECD in learning achievement. In the most recent PISA assessment of 15 year old students, of science literacy in 2006, the OECD average was (by construction) 500 points. Mexico was at 410, which was actually substantially ahead countries in the Americas (Argentina (391), Brazil (390), and Colombia (388)) and the

world (Indonesia 393, Tunisia 386). Slightly ahead, but still far behind the OECD were Turkey (424) and Thailand (421).

At the same time, all of the existing empirical evidence suggests that pushing on the existing tools of business as usual school improvements—more teacher training, more resources, smaller class sizes, etc—within the existing systems has very little effect. In this literature there are two schools of thought: one that, in general, business as usual "improvements" in inputs have effects statistically indistinguishable from zero (Hanushek) and those that believe that the effects are very small, but with precise estimates can be distinguished from zero (Kremer).

These countries are like a marble at the bottom of a large flat bowl. Even if the rolls a bit one way or the other it doesn't get very much higher. Trapped in the existing system there doesn't appear to be anyway that the available incremental reforms take these countries from around 400 to the OECD average.

High performance. Among the non-OECD countries there are two groups that do about as well or better than the OECD: the East Asian countries around China (e.g. China, Korea, Japan, Singapore, Hong Kong) and the ex-Communist countries (e.g. Slovenia, Hungary).

These countries are evidence of what a highly controlled and highly pressurized spider system can do. An effective spider system does what an effective spider system wants to do.

The communist countries are the best example, as the educational systems of these states are the best illustration of what the spider systems were built to do as they were the most explicit about their goals for socialization—the creation of the new socialist man—and their goals to produce good workers. Of course in all of these cases, which were examples of "forcing" states the cost of the spider system in terms of loss of freedom, excessive uniformity, rote learning, were widely discussed.

The high performance East Asian countries are the most interesting. Within these countries the debate about educational systems is how to move beyond the ability to produce high test scores in their students, driven in large part by hugely high stakes to the student examination system, to systems that can produce cutting edge creativity and innovation as well.

Conclusion

Education is the preparation of youth to fulfill their roles as adults—economically, socially, politically, organizationally. In this sense, every human society has always had universal basic education. Government owned spider systems of schooling were the adaptation of education to prepare youth for a new world, the advent pf the "modern." The "new world" that the world's legacy systems of schooling prepare youth for is still the world of 1920: economically Henry Ford's Rouge factory,

organizationally the Prussian army and British Railroads, politically the expansion of the franchise in the British Reform Act of 1918, socially the consolidation of nationalisms into what it means to be "German" or "Italian" and the "Americanization" of the flood of immigrants. That world no longer exists: anywhere.

In the world's richest countries this world has long since disappeared to distinctively post-modern economics, politics, organizations, and societies.

In the world's poorest countries the idea of "development" was that that all countries would move through the historically trajectory of the West, just at an accelerated pace (with Japan's directed development after the Meiji restoration lurking as the role model). This hasn't happened, and isn't going to happen.

In the world's middle income and emerging countries are trapped in the middle, building a bridge to a shore receding from them.

How can systems of schooling adapt to meet the challenges of the world today's youth actually will face? Structured, pressured, supported starfish systems of schooling is just a way of describing an array of approaches, guided by the common principles of maximum autonomy at the lowest levels, pressure for broadly assessed performance of individual schools created by the exercise of choice and voice, with support flowing to equalize opportunity for students and knowledge of providers.

These systems can be adapted to low capacity environments to address the problems of the F-states or high capacity environments to facilitate the move beyond the basics.

But, lest this sound too rosy, nothing comes without a price. The price of starfish systems is allowing freedom. The decisive *purpose* of the large centrally controlled schooling system was to limit people's choices in the socialization experiences they could offer their children. To work, starfish systems must have choice and choice must mean freedom as, except at the extremes, you cannot control indirectly the process of socialization. This means that other people's children will get an education that you object to—they might be taught to be Islamic and wear a head scarf or to be Jewish and wear a Yarmulke, or to be Amish and dress plainly. Other people's children might be taught to be proud to be Basque (and not just Spanish), or Hispanic (and not just American) or Aremnian (and not just Turkish). Some people will make what you and I regard as "bad" choices. That has to be faced head-on. Schooling systems cannot prepare children for a future of freedom and diversity and creativity without freedom and diversity and creativity.