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Forging a Common Language Community In Education: Towards Smarter, Fairer and More Unified Countries

In this talk my focus will be on language and especially in the first six or seven years of schooling. When we look at the long-term results in the United States – recorded in the National Assessment of Educational Progress – we find a consistent determinism in reading scores between age 9 and age 17. If a reading score is low at age 9 the chances are overwhelming that it will be low at age 17. The gap between high and low scorers will usually have widened in the intervening 8 years. So, schooling in the United States today between age 9 and 17 does *not* narrow the language gaps between students; it increases them. Yet within grades K-6, before age 9, when children follow a shared curriculum that is well-planned, we now know with confidence that *all* children do reach higher reading scores, and that the gap between high and low language scores is greatly narrowed. Gap narrowing becomes ever less probable with each passing year. The early grades are critical. And they offer immense opportunities for improving the well-being of a nation.

The pre-destination of language ability by age 9 is not hard to explain. Schooling takes place through the medium of language. If your language score is low, or if you are in the same classroom with high-scoring students, you will be gaining less knowledge per day than they are gaining. And that's because your language deficit is also a knowledge and learning deficit. A reading test at age 17 is inherently a knowledge test. I've written more than one book on that point so I won't belabor it here. If, in a child's school career from grades K to 12 she is learning less per day than her highly verbal peers, her knowledge-language deficit increases. That pattern continues: by the end of high school, the gap is almost never overcome in later life.

The cause of this life-determinism is this: the basis for knowledge gain is language comprehension, and the basis for language comprehension is prior relevant knowledge. That's why a child's *knowledge* level by age nine predicts her language-and-knowledge level in later life. And that's why the early years of schooling – Kindergarten through grade six – will be my universe of discourse in this talk. If we get those years right, the competence and fairness – and unity – of an entire nation can be boosted.

Let me reveal from the start where I stand in the current educational debates about grades K-6 – debates that are inducing emotion in both of our nations – especially about the idea of a common-curriculum versus an individualized-curriculum. A lot of evidence over the past two decades – including the PISA scores that rank 15-year-olds of 80 nations, plus

new scientific studies – now clearly show the superior effectiveness of the common-curriculum idea. But that by no means entirely negates the element of truth in the individualized-curriculum idea. The advantages of cultivating a child's individuality and independence are very real. There can therefore be important points of consilience between the proponents of commonality and the proponents of individuality. The two goals are not as inherently as opposed as we partisans have tended to make them.

Schooling can never be wholly n individual even with private tutors. That's because schooling takes place within a society. Aristotle was right. Humans are from the start socio-political animals. Human individuality is itself post-socialization. The human infant as an individual is helpless in almost every respect. From its earliest days it depends upon caregiving, and upon the learning of a language. Nature had to start us early before we could flourish on our own because of our big, growing heads and brains. So, no matter our various personalities and individualities, our elemental need for communication and help fosters human socialization and language from the start. The socially-enmeshed, socially constituted nature of human individuality is becoming ever more thematized in current research, not just in language study, but even in developmental psychology itself. Here are some characteristic titles of recent studies: "Cross-cultural differences in cognitive development: Attention to relations and objects." (2012) "East-West cultural differences in context-sensitivity are evident in early childhood." (2016) "Cultural differences in visual object recognition in 3-year-old children." (2016). Piaget's stage theory of the child's psychic growth has been disconfirmed simply by observing quite different patterns of how the child fundamentally develops as it becomes socialized in different cultures.

So when I say that current science supports the absolute primacy of the social in education, yet that does not necessarily neglect the individual, I'm not just thinking of language and the field of psycholinguistics, where I got my start, but also of recent advances in in cognitive and developmental psychology, and evolutionary biology, and micro-biology, all of which confirm and reconfirm the priority of the social in human education.

That insight is hardly a new story. A lot of people with wisdom and common sense – certainly since Aristotle – perceived this social truth long before we learned decisively -- in the year 2005 – the year we determined that the human neocortex really *is* a blank slate upon which language and knowledge need to be imprinted by society. I use 2005 as a convenient date, because that's the publication year of a report in the Proceedings of the American National Academy of Sciences entitled: "The neocortical microcircuit as a *tabula rasa*." The neocortex is that late-evolved, large part of the brain that gives us language

and most of what distinguishes us as human; it's also what makes the head of the human baby so big.

I have an email message from the distinguished first author of that neocortex article, Nir Kalisman who put the case succinctly as follows: "The biological circuitry in the cortex is so flexible as to allow *any* form of knowledge and behavior to be taught to it." (Repeat) I interpret that blanket pronouncement, based on fantastically interesting research at the cellular level to say that evolution has formed the human child so that it is inherently natural for some of the diverse inheritances from our evolutionary past to be guided and controlled and even thwarted by the later-evolved language and knowledge parts of our brains, that produce rules and maxims *not* from inborn instincts but from the surrounding society. We have always known that humans can be perverse and unnatural. We are only just now learning that being unnatural is our great gift from nature. It is natural to subvert nature. This new science of the neocortex doesn't challenge the child's individuality. Each child *is* of course different genetically. Rather the new science says that each child's blueprint for psycho-social development including that child's individuality is *incompletely* defined by nature. Unlike other creatures, we are NOT born with an inherent developmental blueprint, as John Dewey believed.

But the implications of that insight are hardly new. Let me quote a sage American educator from the early 19th century – Horace Mann – the great founder of American public education. He states very clearly the basic implications of recent evolutionary psychology and neural microbiology, both of which are saying that Nature has herself made human education fundamentally different from the blueprint-following development of other creatures. In 1838, in his prospectus for a school system in Massachusetts, Horace Mann patiently explained that fundamental point as follows.

> The human being is less endowed with instincts for his guidance than the lower orders of animated creation. Consider then his condition when first ushered into life. He is encompassed by a universe of relations, each one of which will prove a blessing or a curse, … and yet in regard to all these relations it is to him a universe of darkness. All his faculties and powers are susceptible of a right direction and control, and, if obedient to them, blessings innumerable and inexhaustible will be lavished upon him. But all his powers and faculties are also liable to a wrong direction and control; and, obedient to them, he becomes a living wound.

According to Horace Mann, then, the human child for its own individual fulfillment needs to be inculcated with and sustained by the language and values of the society into which it is born.

Compare that Enlightenment view with John Dewey's post-Romantic basis for the child's school curriculum: He says this in his 1902 book *The Child and the Curriculum*:

I believe that [the] educational process has two sides - one psychological and one sociological; and that neither can be subordinated to the other or neglected without evil results following. Of these two sides, the psychological is the basis. The child's own instincts and powers furnish the material and give the starting point for all education.

Dewey's great virtue is honest clarity. Romantic that he was, he thought that the child's inborn nature will never steer us wrong. He liked to quote Wordsworth. He considered Hegel his master. He believed that that there's pre-established harmony between the needs of society and of the child. He thought, as do many American school teachers, that if we follow the child's natural, inborn blueprint, and individual tendencies, all will be well. American teachers are still being taught that this conception was scientifically proved by Jean Piaget.

Although the human child does share with other creatures a set pattern of external physical development, humans do not follow a set pattern of psychological and behavioral development. On the contrary, what Horace Mann accurately conceived has been updated and confirmed by both evolutionary and social psychologists. Nature has deliberately withheld its guidance from humans -- except for some powerful residual impulses in the lower parts of our brains from earlier stages of evolution. But nature also says that these need to be guided and overwritten by parenting and social education imprinted upon our neocortex through language and schooling.

So, that is my first argument in this talk – the primacy of the social in early education. We can now be confident that nature herself is saying that society, and *not* the child's individual instincts and powers, are meant – even by nature herself – to be in charge of choosing the school topics in our elementary schools – especially in the formative early years. Nature is saying very loudly that for us humans, unlike other animals, guidance does not derive from the child's "instincts and powers."

I shall expand a bit on that point, and then add a few final remarks about how nurture and schooling can most effectively follow nature's deference to the mores of the tribe.

Nature has shown that we do this most effectively by teaching all of our children a definite, knowledge-based curriculum that is commonly shared – especially in the decisive early years. Within that larger, socialized context we certainly should encourage individualism. But I urge you not to assume that this is a settled issue or that I have overdrawn the wrong-headed impracticality of individualized subject matter in our American early curriculum. It has been the primary cause of our disappointments in inequity and low national scores.

The Dewey point of view starting with the instincts of the child is the dominant one in the United States. If you go online at the reading program being recommended at Teachers College, of Columbia University in New York City, Dewey's own university, you will find his idea of starting with the child's individual instincts and powers still firmly in the saddle.

Here's a brief example. The Teachers College Reading and Writing Project offers classroom libraries of between 500 and 700 colorful small books for each classroom at each grade level, labeled by difficulty and focused on multiple topics that the individual child might find interesting: *In the Park*, *I Can't Find My Roller Skates*, *Tiny and the Snow Dog*, *Baby Elephant is Thirsty*. The teacher is advised to steer the child to a shelf of the proper difficulty level, to let her choose whatever topic captures her personal interest. Such an approach, it is said, will engage the child's interest better. Anything that goes against the child's instincts might be "developmentally inappropriate." The child is thus made co-chooser of the lesson topic, on the assumption that her choice will be in accord with her individual "instincts and powers."

Yet if that current view of what is natural and appropriate to the child were a fully *accurate* view of what nature wants, both Britain and the USA would be performing a lot better in reading than they now do. The UK scores number 22 in the PISA rankings of the reading ability of 15-year-olds. The USA ranks 24.

Let me offer a preliminary appeal to common sense. To say that a human adult society should itself decide what to teach its young, and *not* leave it to the instincts and powers of the very young child – that we ought to *reverse* Dewey's priorities, should not really need to be founded upon the latest news from molecular biology. Little babies in Japan grow up to be Japanese children, and those in England grow up to be little English children. What we currently name "ethnicity" is not some primordial essence, but rather something formed by education -- the result of society and its various forms of schooling. Ethncity is in-printable upon the neocortex -- and it is also over-printable. Two babies, if they are switched at birth -- like the ones in *HMS Pinafore* -- will end up speaking whatever modern print-language happens to be standardized for their nation.

That sort of thing was essentially known to Aristotle and Horace Mann. But there is one big novelty in this latest scientific work. Which is this: The underlying nature of the individual human child is not something fixed. Individuality exists only as primordial tendency. Our incompleteness is part of our evolutionary uniqueness. Steven Pinker is clearly right that we humans are not a blank slate; but neither do we have, a gene-defined developmental blueprint. The notion that each child has an innate developmental blueprint is fundamentally incorrect. That phrase "developmentally inappropriate" applied to the topics of the school curriculum is scientifically suspect.

Nature has encouraged human social experimentation by withholding an inborn blueprint. That was a hugely successful invention of evolution. Nature has left it up to the conventions and the rules of the tribe, and above all to the language of the tribe to be written upon the child's neocortex by education. Human incompleteness is the *essence* of our evolutionary advance. It enables us to *overrule* our residual reptilian impulses and any residual genetic instructions that might lack survival benefit for the larger group. Nature herself invented the means for *not* following the residual nature that remains implanted in our genes.

Wordsworth was as wrong as it is possible to be when he said: "One impulse from the vernal wood/ Can teach us more of man/ Of moral evil and of good/ Than all the sages can." Oscar Wilde was right when he countered: "People only discover in Nature what they bring to her. She has no suggestions of her own. Wordsworth went to the lakes, but he was never a lake poet. He found in stones the sermons he had already hidden there." Exactly so.

Our more evolved nature thus doesn't even *want* us to follow our instincts and powers as Dewey held. Rather, it wants us to await instructions from the tribe's painfully gained knowledge. "Development" is a misleading educational metaphor from the romantic period. The earlier term "formation" is the more accurate term for human education.

Let me now turn to the chief means by which our neocortex accomplishes its feats – through language. My argument is that if we get the content of our *early* education right, we will impart high language ability and therefore get our later education right. Education takes place through language, and here again recent scientific advances offer insights that can guide us away from misleading slogans that have thwarted our progress.

The field of psycholinguistics might well be part of the training of our primary school teachers. It's the field that explains the connections between language comprehension and specific knowledge. There are three terms from that field that it would be useful for every primary teacher to understand at some reasonable depth: The term "Background knowledge;" the term "situation model;" and the term "speech community." Once the implications of those three terms are accurately understood, our teachers will become converts to commonality in the early curriculum.

We used to focus language learning on word learning. We knew that having a large vocabulary entailed knowing what those words meant. But we assumed that vocabulary exercises alone would do the trick. Rightly understood, those assumptions are fairly sound, so long as *all* of the children in our classrooms are understanding the language of the classroom itself. That isn't the case. As I observed in my intro, children from our lower SES homes fall further and further behind in language and knowledge. This has given rise

to a kind of resigned sociological determinism. But the determinism is not sociological. It's pedagogical – the fruit of inadequate theory.

The field of pyscholinguistics has highlighted the importance of the unspoken and the unwritten. Take the simplest nursery song: "Polly put the kettle on, we'll all have tea." Think of setting that verse before the child of the South Bronx -- even one who has been told what a kettle is. Put the kettle on what? And then, what about the social dimensions of "having tea" – which involves far more than drinking a liquid? What's needed is not general knowledge, not just any relevant knowledge, but the quite specific knowledge required to understand "we'll all have tea." That's the point summarized by the term key term "background knowledge."

That term became still more refined and codified. Psycholinguistics now teaches that to understand any sentence it's inherently necessary to construct a "situation model" for its use. The sentence: "Mary had a little lamb" is, by itself, ambiguous, with a a different meaning out in the countryside or in a butcher shop. Accurate interpretation of speech means having the relevant background knowledge that enables one to construct the appropriate situation model for the utterance. So comprehension requires not just general background knowledge, but the specific knowledge needed for that particular utterance.

And finally, psycholinguistics uses a third key term "speech community." It's a group of speakers and listeners, readers and writers who share enough common background knowledge consistently to construct the right situation models – the ones that enable them correctly to interpret the speech and writing of other members of the speech community. I'll conclude this talk by indicating how these simple insights about language illuminate the complexities of educational policy.

Let's go back to Mesopotamia and first grade. Let's say I'm teaching first grade, and reading aloud these three sentences to my class of first graders:

Almost four thousand years ago, a father and a son were walking together on the banks of a great river, close to what was then possibly the biggest city in the world: Babylon. The father, whose name was Warad, said to his son Iddin "See, my son: the great Euphrates River. If this river did not flow there would be no wonderful city of Babylon, no palaces, no gardens, not even any houses."

I ask my class of first graders whether those old cities were like Chicago or some other nearby city they know, and we'd have a brief discussion about whether those old cities they had electricity and the internet and flushable toilets.

I'd figure that some of the more advantaged children would already know the right answers, but other kids might have a completely anachronistic conception of what

Babylon was like. They'd be at a disadvantage in understanding the story, and their confusion might persist and build. But if we supplied the needed background knowledge and equalized their understanding of the text by a short class discussion, that would help put all the children on a par in understanding the story.

I'd thereby be engaged in forming our little class into more of a "speech community." As a true speech community, our class as a group will progress in knowledge and competence. Classroom teaching of any subject is only effective for all the students when it takes place in a shared language within a shared speech community.

If you try to find an exception– I think you will fail. I tried to think of some – maybe one-on-one tutorials, classes for blind or deaf children, computer tutorials, self-teaching, in private, reading and pondering. But I assumed I'd fail, because psycholinguistics has established that language doesn't fully speak its own meaning. There are no exceptions to this generalization. And thereby hangs a tale. To understand what someone is saying, I have to know many things that are not stated. My first graders need to know that "city" means something different in different time periods.

A speech community begins to exist in a classroom when all of its members teacher and students, share enough shared unspoken background knowledge to enable a fully successful communication to occur. Progress in learning for a whole class or even for a single tutee depends on the teacher and the learner sharing not just the basic meaning of the explicit words but also meanings that are not explicit. Only by building up the shared background knowledge that is *going* to be needed in *later* classes can *all* children in the class progress in knowledge and language.

To be successful, then, a classroom must form a progressively-knowledgeable speech community that effectively exploits both the explicit sense of words and the inexplicit background knowledge that enables the words to communicate effectively. It's pretty obvious that this can be done *only* through a carefully planned-out sequence of topics. An education that is to reach all students has to be based upon shared relevant background knowledge that has formed the classrooms into speech communities. Such shared background knowledge for all is only built up over time when month by month and year by year our young students learn many of the same things. Shared relevant knowledge is *the* key to all effective education, especially elementary education. It's not a new principle. To create this common platform for all children is called is called "scaffolding" In the educational literature. It's obvious to common sense. What is less obvious is the need for commonality and scaffolding in the *unspoken* domain – the relevant background knowledge that enables classroom communication to occur.

In the USA our public Core Knowledge schools that follow these principles tend to be the highest, performers in the district with the most enthusiastic students. They are also the most egalitarian. Any school can become a Core Knowledge school simply by following its carefully worked out topic sequence grade by grade. This conversion of the classroom into a speech community boosts the competence of low SES students without holding back the ablest ones. I just had word that a publicly-funded Core Knowledge school in Colorado had decided to follow the speech-community principles all the way through grade 12. I hope to find out more when I go to Colorado in a couple of months. It's a public school that takes students from all family backgrounds. The word has just come in that, despite this social-class heterogeneity, its average end-of-school, 12th-grade score is the highest average score in the state of Colorado. Not just that, it has outscored the next highest school by some 25 points – an astonishing differential. But maybe not so astonishing when we realize that this graduating class had built up from first grade to grade 12 a remarkably literate speech community.

Such building up of common background knowledge does not constrain individuality or hold children back. It does not prevent a young genius from concluding that the growth of cities, including Babylon, was accompanied by a greater division of labor, or finding out that the word "civilization" means "citification." More power to those whiz-kids. Empathetic teachers over the world have always found ways to keep budding geniuses engaged. And It's crucial not to hold them back. The same variability applies to helping slower learners, as teachers have explained to me. Commonality of topic need not be the enemy of individualization.

Building a scaffold of commonality for all elementary students has proved to be the sole mode of effective democratic education. That approach characterizes every highly effective national educational system in the modern world. By contrast, *no* educational system that fails to follow this approach has made significant progress. Those that changed in the direction of commonality like Germany and Portugal have thrived. Any nationwide or statewide education system or local school district that wishes to offer its children a first-class, democratic education, one that enables all children to reach their individual goals and maximize their contributions to society, need to institute a highly specific sequence of topics under which knowledge builds on knowledge and reliably forms every classroom into a speech community.

Only such commonality enables all students to supply the shared, relevant background knowledge that alone enables further learning, and ultimately produces competent citizens. Through building a highly literate national speech community, we build up not just a competent work force and informed voters, we also create a more unified

community that can overcome narrow tribal sentiments, which are the bane of the current political scene in the United States.

Moreover, there's a broader social implication to such commonality in the early curriculum. A sense of shared identity developed in early schooling is the best way for a liberal democracy to achieve the degree of social and linguistic cohesion that creates a sense of belonging that holds a nation together. The USA is currently experiencing a crisis of unity. Our political scene is polarized.

Just as there's no effective classroom that has failed to become a speech community; there's no effectively unified nation that has failed to do so. I say that in full knowledge of the vigorous existence of Belgium, Canada, and Switzerland. But citizens of those nations do not themselves admire their cohesion as a nation. Successful multi-lingual nations are anomalies. Our American emphasis on multi-ethnicity has made us less not more tolerant of one another.

But let me not end on the depressing note of current American politics. This occasion is for me a very happy event that I'm very grateful for. Let's end by noting the with a little more particularity the effect of topic commonality on the young first second and third graders themselves. They love school; and they love learning – largely because they ARE learning. As part of a well-formed speech community, they are eager to take in and talk about the next subject to be taken up.

Here's an excerpt from a researcher's report in an elementary school out in Riverside, California;

Located in a downtown, working-class neighborhood, 78 percent of Bryant's students live in poverty. Largely Latino, some 27 percent are English learners. And from our observations, 100 percent are engaged, joyful learners.

A tour through Bryant's classrooms is a celebration of knowledge. From the terracotta warriors on the shelves to the maps of the world, stories about ocean zones, and African masks—these students and staff are proud of what they do and learn every day—and chose to show it. I was able to gain knowledge just by looking around the room!

Of course, there was much learning happening inside the classrooms, with students exploring questions like:

What are the techniques and features of Renaissance art and architecture (5th grade)?

Why were waterways important in the War of 1812 (2nd grade)?

What do examples from history and student experience tell us about the role of failure in the inventing process? (4th grade)?

Why was farming important to the Ancient Mayan Civilization (1st grade)?

The virtue of a structured, sequential curriculum, that was well known to and followed faithfully by the teaching staff, was evident throughout our visit in statements like, “Remember last year in the middle ages, the art was all dark and serious (comparing it to Renaissance art which displays “grace and elegance”)?” or “You’ll be learning more about the Great Lakes (one of the waterways important in the War of 1812) in 3rd grade.”

I’ll end this talk with an anecdote that the principal of this school Lari Nelson, sent me. She actually sent me a dozen anecdotes, but I had only asked for this one that she had mentioned to me, because it encapsulated the young students joy and confidence when they consistently understand and learn from the classroom. She wrote me this:

One morning, I was on the playground before school supervising the students play. Makayla, a second-grade student, came running up to me shouting, “I’m so excited for today!” I asked, “Why is that?” I expected her to say that it was her birthday or some other special event. But she exclaimed, “Because today we are going to learn about the War of 1812!” I said: “Gee, I wonder what that is about?” “I don’t know,” she said. But today I’m going to find out!”