
LEARNING THAT MATTERS

AN EXPANDING UNIVERSE

David Perkins and Flossie Chua

Project Zero, Harvard Graduate School of Education

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EXECUTIVE SUMMARY

What's worth teaching is perhaps the most central question of education. Choices about what's worth teaching made by educators, school boards, and governments fill up the schooldays of students. However, many educational leaders today feel that this fundamental question does not get enough attention. Too much effort goes toward doing the same job better and not enough toward rethinking what the job is.

In this spirit, educational leaders in many independent schools and some public schools have introduced new themes, such as 21st century skills, digital technologies, interdisciplinary learning, world citizenship, global perspectives and global problems. While mastery of reading and mathematics remains a tremendously important agenda, the universe of what's deemed worth teaching by one or another advocate is expanding dramatically.

This white paper offers a broad but brief overview of trends in that expanding universe:

1. *Beyond content* – 21st century skills, competences, etc., such as critical and creative thinking, collaboration, communication, self-management.
2. *Beyond local* – Global perspectives, problems, and studies, as with our global economy or worldwide problems of energy or water supplies.
3. *Beyond topics* – Content as tools for thinking and action, for instance with regard to some of the big issues above.
4. *Beyond the traditional disciplines* – Renewed and extended visions of the disciplines, for instance broader views of history or studies of contemporary communication technologies.
5. *Beyond discrete disciplines* – Interdisciplinary topics and problems, such as the roots of intergroup human conflict or poverty.
6. *Beyond prescribed content* – Learners as choosers of what they learn well beyond the typical use of "electives."

Innovative schools make room for such developments by some combination of (a) shrinking topics that perhaps are not so much worth teaching in their fullest form and (b) combining new ideas with old ones, for instance 21st century skills with learning in the traditional disciplines.

This white paper is an invitation to think about these broad trends and explore what directions your own institution might take toward educating today's learners for thriving individually and contributing socially to the complex world of tomorrow.

INTRODUCTION

What's worth teaching is perhaps the most central question of education. Choices about what's worth teaching made by educators, school boards, and governments fill up the schooldays of students. Neil Postman begins his 1996 book *The End of Education* by noting how educational innovation usually focuses on method – how to teach X or Y better. Although this "engineering" problem as he calls it certainly is important, Postman warns that the most fundamental question we face concerns not so much the means as the ends, not so much the "how" as the "what for." After all, in principle education has never been about learning for its own sake, but rather for the sake of the lives learners are likely to live as workers, citizens, parents, friends, colleagues, and community members.

Neil Postman passed away in 2003. Were he with us now he might feel better about at least one corner of the conversation about education. Prominent today are such themes as 21st century skills, digital technologies, interdisciplinary learning, world citizenship, global perspectives and global problems – matters of what's worth teaching. Nations, states, innovative school systems and schools have advanced diverse conceptions of what's worth teaching. While mastery of reading and mathematics remains a tremendously important agenda, and while in many settings the subject matters take forms recognizable to any grandparent, the universe of what's deemed worth teaching by one or another advocate is dramatically expanding.

This white paper aims to offer a broad but brief overview of that expanding universe, informing and provoking discussion among those participating in the initiative *Leading Learning that Matters*.

EXPANDING FROM WHAT?

If the universe of what's deemed worth teaching is expanding, what's it expanding from?

Perhaps the best way of answering that contrasts the current conversation about what's worth teaching with education of a very conventional sort. Education of a very conventional sort is:

- Content focused, not giving much attention to skills beyond basic literacies.
- Local and regional rather than global in areas such as history and literature.
- Dedicated to "learning about" rather than "thinking with" – for instance, learning about the founding of such and such a nation, atomic theory, multiple linear equations – without much attention to how to use the ideas for thinking about contemporary issues, civic roles, other subjects, etc.
- Traditional versions of the disciplines. Mathematics, history, etc., take familiar form with minor updates.
- Segregated by disciplines. The disciplines largely stand apart from one another, without much attention to interdisciplinary mixes. The typical disciplinary divisions remain much as they were half a century ago, updated with some new content but not fundamentally rethought or revised.

- Largely prescribed – students have limited say in what they will learn.

The contemporary conversation about what's worth teaching challenges every one of these bullets. According to various frameworks, perhaps 21st century skills should receive attention, perhaps global perspectives, perhaps ways of using knowledge from the disciplines to think about contemporary problems, perhaps interdisciplinary studies, perhaps new versions of disciplines and new disciplines or subdisciplines altogether, such as a taste of complexity theory or systems thinking or globalization. Finally, some have challenged the idea that the curriculum should be prescribed. They have developed models of schooling where students choose what they learn, albeit with some constraints to prevent a free-for-all.

Any experienced educator at this point might be thinking, "All this sounds great...but where's the time for it in the already very busy school day?" This is a tremendously important question without easy answers. We will return to it toward the end. For now, though, let's get a sharper picture of *what's worth teaching* according to various educational thinkers and innovators.

EXPANDING TO WHAT?

We've said that the universe of what's worth teaching is expanding. We've touched on what it's expanding *from*. But what is it expanding *to*? A survey of the current conversation suggests at least the following categories. The aim is not to give a thorough account of these, but simply to characterize them briefly for the big picture.

1. BEYOND CONTENT: 21ST CENTURY SKILLS

Frameworks for 21st century learning highlight the importance of preparing students to live and work in a world characterized by highly sophisticated information and communication technologies, global interconnectedness, and shifting demographic patterns. They typically provide lists of knowledge/literacies, competencies/skills, and behaviors that would help students to thrive in their contemporary world.

Recommended literacies that are common across these frameworks cover areas such as reading itself, along with mathematical, scientific, civic, visual, technological and information literacies. These literacies provide the tools for acquiring the broad vocabulary and knowledge important for understanding today's and tomorrow's world.

The frameworks also typically list competencies or skills such as inventive or creative thinking, adaptability, higher order thinking or critical reasoning, social or collaborative skills, learning to learn, communication, and metacognition. They anticipate that such competencies will ensure that students are life- and future-ready.

Finally, the frameworks also describe dispositional and value characteristics such as curiosity, discipline, and responsibility, as well as interest in formulating questions and conducting investigations. These two are deemed important to cultivate if students are to take on committed and productive roles in our global society.

2. BEYOND LOCAL: GLOBAL PERSPECTIVES, PROBLEMS, AND STUDIES

Articulations of global curricula for the 21st century envision the broadening of students' perspectives so that they engage meaningfully with complex world issues, understand global histories and cultures with some depth, and interact respectfully with representatives of diverse peoples and cultures. Courses on global studies usually take one of three forms: they teach a *world* version of subject areas, under such labels as world history and world literature; they focus on the teaching of languages; or they involve an in-depth study of a country other than the learners' own.

World versions of subject areas focus on providing a broad look at human society through the lens of particular disciplines. An example is a Social Studies course that requires students to learn about the political, economic, and social developments in the world in the last two centuries. Another is a World Literature course in which students read literary works from different countries and eras, focusing on specific themes like Northrop Frye's theory of literary archetypes.

The study of world languages is perhaps the most frequently advocated form of global studies. Learning how to listen to, read, speak and write Arabic, Chinese or Japanese is viewed as commensurate with learning a different culture and history.

Studying a country in-depth through literary and historical texts supports students in building a complex, multi-dimensional conception of the country. Such courses often organize the curriculum around themes such as revolution, power, and identity.

3. BEYOND TOPICS: CONTENT AS TOOLS FOR THINKING AND ACTION

One common feature of schools established around progressive conceptions of education is the purposeful learning of disciplinary content: students learn specific concepts and methods in order to understand a theme or issue and propose directions or solutions. Here, the disciplines become tools that students use to address authentic challenges such as drafting a publicity plan for a local business that meets the demands of sustainability and profitability, or conducting a field-based investigation of the effects of waste disposal on the local river system.

Such schools often create opportunities for students to apply their learning by making internships, fieldwork, work placements, and group investigations a critical part of the school curriculum. Students learn content in subject-based classes that explicitly connect back to their work with local businesses and community organizations, or that actually get taught within projects. Learning in the classroom shifts from mastering a canon of information to understanding the purpose of learning as making sense of authentic contexts and phenomena and developing productive action. Students come to see the disciplines as tools that they can use to understand the important questions of our times, and to solve the problems of our world.

4. BEYOND THE TRADITIONAL DISCIPLINES: RENEWED AND EXTENDED VISIONS

Most schools pay some attention to minor updates in disciplinary content, but some schools reach much further, toward renewed and extended visions of the disciplines. Some

educators feel that the typical distribution of topics within a discipline is out of balance with contemporary needs. They might recommend much more statistics and probability as part of the mathematics curriculum, balanced by somewhat less attention to advanced algebra. For settings where economics is studied, they might recommend including attention to behavioral economics, a step beyond classic economics that gives a more realistic picture of how people make fundamental economic choices.

Some disciplines are available in new and exciting variations. For instance, "big history" begins with the big bang, approaching the current era through a series of successively finer-grained examinations of how history has unfolded, including such large-scale issues as the rise of civilizations and broad patterns of migration. Some versions of the teaching of history, and other disciplines, give much more attention to the "way of knowing" of the discipline – what is it to think like a historian, or a mathematician – a process that in its fundamentals can begin in the early years of education, plausibly making students more engaged and better learners because they understand the basic "game" of the discipline.

The traditional mosaic of disciplines, assembled some time ago, arguably neglects disciplines that have come into their own over the last decades. For example, psychology and sociology have developed powerful perspectives for understanding human learning, complex cognition, intergroup violence, and related themes; whereas half a century ago the direct study of psychology and sociology preuniversity might not have seemed like a promising endeavor, today it certainly does. For another example, communication technologies represent a timely and engaging area of study, beginning with print technologies but moving on to the Internet, various modes of social networking, online resources, and their impact on life and culture.

5. BEYOND DISCRETE DISCIPLINES: INTERDISCIPLINARY TOPICS AND PROBLEMS

Instead of only organizing content into disciplines traditional or novel, many innovative schools are beginning to bundle content using big ideas that cross disciplinary boundaries. These big ideas – from the study of the new world order, to understanding how time, space and human geographies have impacted the development of ideas – require that the curriculum invite students to develop a meta-disciplinary view of the world they live in, and to work in the same ambiguous problem spaces that real world experts operate, albeit at a lesser level of sophistication. They also highlight the importance of drawing relevantly from the disciplines and synthesizing ideas in order to arrive at deeper understandings.

Such interdisciplinary explorations are also evident in school models that emphasize real world connections in their curriculum. In these schools, students constantly see the multi-dimensional nature of real world issues and problems, and learn to work across the disciplines to understand or them. For instance, schools that feature community placements or internships for students as part of their learning experience create fertile environments for students to draw from more than one discipline to learn the knowledge and skills necessary to function effectively in the workplace. Other schools that arrange for members of the community or professionals from different fields to interact with students invite conversations that highlight the interdisciplinary reality of real world functioning.

6. BEYOND PRESCRIBED CONTENT: LEARNERS AS CHOOSERS OF WHAT THEY LEARN

The notion of school curriculum being relevant and meaningful to students is hardly new, but today it's gaining traction in diverse settings at some scale. Innovative schools have begun to factor student choice into learning in ways well beyond the "elective subject." In some schools, students can choose to spend much of their time working on projects of special interest to them; teachers support them in their investigations as resources and guides on the side. Other schools build strong school-community partnerships that yield internship programs: students select a field and a community business or organization of interest, working with experts to acquire relevant skills and knowledge.

More adventurous schools work with students to customize their entire learning experience. Advisors/coaches work with students to personalize their studies, from what they want to learn (content and skills), to where they want to learn it in (learning environment), to when they should learn it (schedule), and why they want to learn it (postsecondary aspirations). The advisors try to ensure that the individual learning plans pay sufficient attention to educational essentials such as the development of literacy and fundamental mathematical understandings. Finally, the advisors support students in tracking their progress towards the goals embraced. Students come to see their time in school as truly their own, fueled by their own visions for the future, and much more engaging since they are learning what they think is important.

BEYOND CONVENTIONAL MEANS

We began with Neil Postman's distinction between ends and means. Postman complained that the conversation around education focused too much on means – how to do the same job better – and not enough on ends – what job are we trying to do? However, let's recognize that means and ends are not completely separate. Bundled with ambitious ideas about what's worth teaching are usually progressive conceptions of how to teach and how to assess. Some such teaching approaches often employed include:

- Project-based learning
- Problem-based learning
- Teaching and learning for understanding, employing one or another prominent framework for the purpose.
- Thinking-centered learning, emphasizing thinking through and with the content. Again, there are multiple frameworks for this.
- Learning through community participation
- Integrating the learning of skills (e.g. thinking skills, communication skills, learning to learn, collaboration, etc.) with the learning of content.
- Students teaching students
- Collaborative and cooperative learning

All these ways of teaching tend to take a more holistic, collaborative, and highly active approach to fostering learning. One might adopt some mix of such methods simply for their

own sake, without changing the curriculum much. However, the expanding universe of *what's worth teaching* virtually demands more than the most conventional ways of teaching.

To go with that, the expanding universe of what's worth teaching also calls for more sophisticated and nuanced forms of assessment, which track the development not just of factual knowledge and fluent skills but of understanding and flexible thinking.

THE ELEPHANT IN THE ROOM: FITTING THE EXPANDING UNIVERSE INTO SCHOOLING

The familiar phrase "the elephant in the room" refers to a big problem that people tend to avoid talking about.

Contemporary visions of what's worth teaching have an elephant in the room...and the elephant is the size of that expanding universe. How do we get that elephant into classrooms and class days already overstuffed? Proposed frameworks often touch on this elephant briefly but rarely face up to it in all its difficulties.

Broadly speaking, there are two kinds of answers.

Answer #1. Much of what we typically teach is not worth teaching – let's get rid of some of it to make room! Natural candidates for not-worth-teaching are, for instance, piles of soon-forgotten facts about history and geography, and some fancy aspects of mathematics most students will never meet again in their lives. However, proponents of curriculum reform rarely get tough-minded about what's *not* worth teaching. It's a political minefield! Parents worry when students don't know "the facts." Advocates of one or another discipline press for advanced studies, even though those advanced studies may be useless to most learners. And so on. So answer #1 rarely gets pushed, even though it's very important.

Answer #2. At least part of the expanding universe combines nicely with what we already do – let's take advantage of this synergy! For instance, some 21st century skills, rather than amounting to new areas of study, integrate fairly easily into the teaching and learning of content and enrich it. Some aspects of global perspectives on learning seem natural extensions and enrichments of what students are already learning. Answer #2 poses fewer political problems, so it is the most common...even though it probably isn't completely true. Yes, there's synergy, but synergy doesn't mean that no additional time at all is required. And only some of the expanding universe offers notable synergy.

In any case, given *both* answer #1 and answer #2, there's still a problem. If one looks across the entire expanding universe of what plausibly is worth teaching – categories one through six above and maybe others – the sum of it all is simply overwhelming. Schools could not possibly deal with all that in a meaningful way.

Although it's hard to imagine how to deal with the whole of the expanding universe, it's not that hard to get started. Some schools have taken some rather big steps.

IDEAS INTO ACTION: WHAT SOME SCHOOLS ARE DOING

Most independent schools we know – and a number of public schools – are already doing one thing or another to expand the universe of what's worth teaching. To be sure, these efforts

have their constraints; they always involve coming to terms with a range of political and social influences, such as standards to be met, governing bodies to be respected, and parental expectations. Nonetheless, the experiments are many, diverse, and often exciting.

Here, we offer three brief and deliberately contrasting profiles of what fairly ambitious whole-school-design initiatives can look like. These are meant not as suggestions to do the same thing, or even anything as comprehensive, but simply to kindle a sense of possibilities.

CASE #1. BIG PICTURE SCHOOLS

Big Picture Schools (BPS) are designed around three foundational principles: learning is based on the interests and goals of each student; each student's curriculum is relevant to people and places that exist in the real world; and each student's abilities are authentically measured by the quality of his or her work. There is no canon of information that students must know; instead, BPS schools believe that the most important thing a student needs to know is *how to learn*. Each student is supported by faculty and staff to create a personalized curriculum based on five Learning Goals – empirical reasoning; quantitative reasoning; communication; social reasoning; and personal qualities.

Several characteristics of the BPS learning environments – known as School Distinguishers – set them apart from other learning models. Firstly, students do *learning in the real world* by interning with an expert in a field they are interested in and completing an authentic project that benefits both student and mentor. The BPS model also focuses on *one student at a time* by personalizing each student's learning experience (curriculum, learning environment, schedule, workshop choices or college classes). Students are not evaluated using tests or grades, but by *authentic assessment* based on the real world standards of the internship project. Each school organization does not exceed 150 students, and each advisor has no more than fifteen students. An *advisory structure* is in place: advisors function as coaches, mentors, teachers, managers and friends to the students in their advisory group, and they stay with the same students throughout the students' high school career.

The *school culture* is defined by learning, respect, diversity, excitement and reflection, and students are encouraged to be leaders and to build democratic relationships with adults. *Leadership* is shared and spread between the principal and a team of advisors. *Parent/Family engagement* is encouraged in all aspects of the students' learning, and families are resources for connecting the school with potential internships and mentors. The *school/college partnership* ensures that all students are prepared for post-high school opportunities through a college preparatory workload, college entrance examinations, and application to a least one college. *Professional development* opportunities such as staff retreats, BPS annual conferences, and visits to other schools are ongoing, and an interactive website, Big Picture Online, supports sharing of information and resources for students and staff.

CASE #2. QUEST TO LEARN

Quest to Learn (Q2L) is a Grades 6-12 school model that emphasizes learning by doing. Two big ideas summarize the school – *design* and *innovation*. Broadly, the Q2L curriculum focuses on design, collaboration, and systems thinking, which are seen as key literacies of the 21st century. Students are immersed in differentiated, challenge-based contexts that require them to use those 21st century literacies, and knowledge to be learned is organized to reflect the 21st century, i.e. integrated, networked, mathematically rich, and systems-oriented.

The school’s design is built around six core principles. Firstly, students learn for *design and innovation* by becoming active problem solvers and innovators in a 21st century spirit. Secondly, they learn to use *systemic reasoning* to think about their world. Thirdly, the curriculum focuses on students learning for *critical thinking, judgment and credibility* and understanding new models of citizenship, and civic and public participation in today’s networked learning landscape. Fourthly, a game-based pedagogy supports students in using a *design methodology* to become socio-technical engineers who think analytically and holistically, experiment and test out theories, and consider other people as part of the systems they create and inhabit. Fifthly, students learn with *technology and smart tools*. Finally, they are prepped for *college and the world of work* through an early college program and internships beginning in the 8th grade.

The curricular content is built around ‘domains’, where disciplinary knowledge is organized around big ideas and across subjects. Examples of such domains are: *The Way Things Work (integrated Math/Science)* where students learn about different kinds of systems, and modify, remix and invent their own systems; *Being, Space and Place (integrated ELA/Social Studies)* where they understand time, space, and human geographies as forces shaping the development of ideas, expression, and values; and *Sports for the Mind (integrated game design and media arts)* where new media literacies are learned.

The curriculum is organized into ten-week-long Missions, which are challenge-based units or quests that pose a problem students have to learn to solve. Each Mission culminates in a special synthesizing unit called the Boss level, where students are given a challenge the whole school works on together to solve, drawing on the knowledge and resources generated during the just-completed Missions. Assessment of student learning focuses on the extent to which students can innovate within a domain, and the knowledge that emerges from engaged participation, reasoning, and resolution of Missions. Students use assessment data to monitor and plan their own learning, and teachers use it to support students’ ongoing potential for future learning.

CASE #3. ENVISION SCHOOLS

Envision Schools were founded on the belief that the current achievement gap is the result of a systemic failure to understand how young people learn and what they need in order to learn well. With the right environment, any young person can be prepared to go to and succeed in college. Such an environment features four best practices of high school design – *rigor, relationships, relevance, and results*.

Envision Schools emphasize *rigor* in academics, teaching and testing. The curriculum is designed around project-based learning, where academic content is acquired in the context of relevant college and professional careers. High quality of teachers is ensured through heavy investment in professional growth, and testing emphasizes deep understanding and growing mastery of an academic discipline using performance-based assessment. In order to ensure small and personalized learning environments, the schools are kept small with no more than 400 students, and each class capped at twenty students. Strong relationships among students, teachers, learning specialists, parents, administrators, and community members result in a respectful and empowering space for learning. Also, students learn by doing, collaborating and performing on projects that are *relevant* to them and that have real world application. Through *The Workplace Learning Experience*, students also intern at local businesses and organizations, working on real world, community based projects. Finally, Envision Schools are highly result-oriented, aiming for 100% of graduates going to and graduating from college.

At Envision Schools, academic content is embedded in projects that require students to explore core academic content across disciplines. Such project-based coursework focuses on learning that is relevant to students and that has real world application. It also incorporates the learning of important 21st century skills like collaboration, creativity, leadership, communication, and critical thinking, as well as integrates arts and technology into the core subjects. Examples of project-based coursework include the study of the role of white phosphorus as a chemical weapon used in the Middle East today, and internships at local businesses and organizations such as the performing arts center and the zoo. At the end of grades 10 and 12, students present portfolios of their best work and defend their portfolios to an audience.