

## 2 Curriculum Change and the Future of Official Knowledge

Understanding the school curriculum has a long intellectual history. Yet the links between curriculum theory and digital media are less well developed. This chapter establishes some important insights from curriculum research for the study of the future of the curriculum in the digital age. The key issues concern what counts as legitimate or official school knowledge and who gets to legitimize it. The questions, then, are what knowledge is to be included in the curriculum of the future, what are its origins in the past and the cultural legacies it represents, what future does it envision, and what authorizes its inclusion?

The chapter introduces some useful concepts for considering curriculum change and provides a brief historical overview of curriculum change over the last three decades. It then describes some contemporary examples of curriculum programs and examines them as microcosmic condensations of current social changes.

### Curriculum Change

Curriculum is the intellectual center of schooling and its main message system. It links together academic and vocational

knowledge and skills with personal identity and the public culture of society. It states what is to be studied and the modes of inquiry for studying it. At its narrowest a curriculum specifies the content of specific subjects. More broadly it describes the values and aims used to justify the total program of an educational institution and all of the educational processes and learning that go on within it.<sup>1</sup>

Looking at it more politically, the curriculum consists of practices that carry specific meanings and importance in society. The curriculum acts, then, as a conduit for other forces and conflicts in society. It is absorbed in complex social, cultural, political, and economic debates and conflicts concerning who gets to “select” for inclusion what counts as “official knowledge.” In some countries, the school curriculum is specified at the national level, as a national curriculum. In the United States, state textbook adoption policies and major federal policies such as No Child Left Behind have been described as a “hidden” national curriculum. It exerts powerful effects on students, structuring the ways in which they comprehend the world they encounter, promoting norms of acceptable conduct in society, and functioning to reproduce political, social, and class structures.<sup>2</sup>

Any efforts to change the curriculum, the epicenter of schooling, can send seismic shockwaves through schools and beyond into society itself. Most curriculum change follows this simple formula:

1. A preferred vision of society is identified.
2. The conditions for the existence of such a society are then identified.
3. The role of the education system and the contents and form that a curriculum should take to achieve these social ends are clarified.

4. The delivery of the means to those ends are then enacted, resulting in changes to existing curricular forms and changes to society.<sup>3</sup>

This formula underpins the process by which most curriculum change is reasoned out, planned, and implemented. Curriculum change, therefore, is a political act, motivated by particular interpretations of educational purpose, aspirations for the future, and ideas about the kinds of people that a society expects to emerge from school. Often curriculum reform depends on the manufacturing of educational crises, disinformation, myths, and half-truths. The educational status quo is attacked in order to bring about a different, seemingly better future. A curriculum, then, represents a particular representation of reality and constitutes a set of messages about the future. It represents what counts as “official knowledge.”<sup>4</sup>

### Factory Schooling

Since the 1980s, official educational reform in the United States, the United Kingdom, Australia, and New Zealand, as well as elsewhere, has been driven by a very particular preferred vision of society. The vision is of a high-tech, global high-skills economy, with education geared to enhancing competitiveness.<sup>5</sup> If the curriculum of the past could be characterized as “factory schooling”—with the great mass of students working on an assembly line of facts and tests in preparation for life in largely routine low-skills industrial jobs—then the curriculum of the future for 1980s curriculum planners was to be focused on the production of a more educated, flexible, and highly skilled workforce.<sup>6</sup> The factory schooling model had become untenable because the factory had been eliminated as a source of employment.

In the United States this future vision was first articulated by the 1983 policy report *A Nation at Risk: The Imperative for Educational Reform*. The report put US public schools under a concerted siege of reform strategies organized around the discourse of competition. It articulated the conservation of Western values and knowledge through a future economic vision of enterprise and entrepreneurship to be taught in “high-tech” schools. Meanwhile, in the United Kingdom a “Great Debate” on the perceived need to link the curriculum to the needs of industry led directly to the establishment of the National Curriculum. On both sides of the Atlantic, this period saw a gradual merging of both the economic and cultural dimensions of the curriculum. Economically, the curriculum was now to be modernized in order to ensure global competitiveness in a free market; culturally, it was intended to protect Western values and knowledge, or to conserve culture, in an increasingly globalized context.<sup>7</sup>

The result has been a tendency to see the curriculum as a cold and mechanical product for ensuring economic competitiveness and protecting conservative Western culture, especially business culture. Scholarly studies of curriculum change in the United States since the 1980s have shown how teachers have gradually lost control of curriculum change processes and arguments, while state bureaucracies, corporate organizations, and religious leaders have competed to govern it. Teachers, once positioned as “factory workers,” have been reconceived as managers of student learning in institutions that promote business values of outcomes, productivity, the bottom line, accountability, and standards, with the emphasis on delivering individualized, skills-based instructional programs. In the United Kingdom, too, the standardization of curriculum and testing has been criticized

for producing “factory schools” and manufacturing learners who are little more than well-drilled automatons.<sup>8</sup>

### Flat Learning

The end of factory schooling has been accepted simultaneously by industry, by modernizers, and by radical educators opposed to its narrow economic instrumentalism on progressive humanist grounds. Oddly enough, curriculum reform after the elimination of factory schooling has become a joint enterprise between economic modernizers on the right and radicals on the left who have accepted the basic argument that the reinvigoration of the economy in a “cybernation” depends on the transformation of schooling and the premise that high-skills schooling will be more equitable for all.<sup>9</sup>

In the 1990s the hardline curricular fundamentalism of the conservative restoration came under attack from researchers who described it as promoting a regressive and retrospective “curriculum of the dead” with a structural resemblance to medieval schooling.<sup>10</sup> The emphasis, since the late 1990s, has been on creative and innovative futures that depend on greater curricular flexibility rather than selective rigidity. In this era, it is claimed, knowledge and creativity have higher economic and cultural value than manufacturing or physical products and economic restructuring depends on high-tech innovations in new technology and media. Consequently, greater emphasis is put on education to teach the cognitive skills associated with knowledge work, on the production of ideas, knowledge, and information rather than material “stuff.”<sup>11</sup>

The knowledge economy has become the dominant political style of thought in education reform worldwide today.

The knowledge economy is used both as an explanation and as a rationale for the modification of the curriculum. In the knowledge economy style of thought, knowledge is assumed to be at the heart of economic competitiveness. Better educated nations therefore have an advantage in the global economy, while well-educated students can aspire to high status, high-skills knowledge jobs that can in turn assure them of rapid upward social mobility. Portfolio careers without boundaries replace lifelong employment. Muscle power is replaced by brainpower in the search for competitive advantage, and value is derived from integrating behavioral competencies with modular task components. That is, if the global economy is based on increased flexibilization, componentization, and modularization of work, then it will require congruent educational practices—flexible, component-based, modular curricula. It is an imaginary and highly politicized narrative of how the economic world is structured and how individuals, namely students, can play their part in its success. A flat world, so the narrative goes, requires flat education systems, although the evidence that this theory works is seriously debatable and its political conviction in competitive global free trade needs to be treated cautiously.<sup>12</sup>

The result has been a thoroughgoing reimagining of the purposes of education, most spectacularly demonstrated by a massive investment in computing facilities in schools around the world. More subtly but more importantly, questions concerning the curriculum have been pushed aside as the emphasis has been put on skills, competence, thinking, and other categories of learning for the twenty-first century. This is the result of the argument that “know-how” is now more important than “know-what,” since most knowledge learned at school—as contained in

the curriculum—is likely to become outdated very quickly in a world that is in hyperdrive.

Leading such arguments, researchers from the interdisciplinary field of the “learning sciences” have emerged as a dominant source of authority and expertise on the structure and organization of pedagogy and learning in schools. This interdisciplinary blend of cognitive science, educational psychology, and computer science (and increasingly neuroscience) is intellectually rooted in constructivist, constructionist, sociocognitive, and sociocultural theories of learning rather than in the societal issues that motivate most curriculum research. It emphasizes the design and application of new instructional programs and ICT applications that can “transform the future of learning” across a spectrum of “schools, homes, workplaces and communities.”<sup>13</sup> Instead of focusing on the structural question of how formal education is organized and how knowledge is selected and presented for study, learning scientists concentrate on improving learning, on questions of intelligence and thinking, on building learning power, on enhancing cognition and metacognition or “learning how to learn”—all aspects of brainpower. A plethora of frameworks of skills, behavioral competences, and new literacies now compete with one another to better align the education system with contemporary challenges and the curriculum and knowledge have been marginalized as monolithic relics of a former era while the science of twenty-first-century learning and the promotion of brainpower has been established as a new educational common sense. In place of curriculum, a “new language of learning” has been assembled by learning scientists from a composite of constructivist and sociocultural theories of active knowledge construction, increased emphasis on generic learning outcomes, and a psychological view of the learner.<sup>14</sup> Rather

than flat *education* systems, then, we are witnessing the rise of a flat *learning* system as the science of learning and building brainpower is applied right across the full range of formal and informal situated contexts, both in the real and virtual worlds.

The science of brainpower has been adopted by enthusiasts for the knowledge economy and the digital age. The hybridization of the learning sciences with the cyberutopia of a knowledge economy suggests that a science of future-building has been discovered: now that we can transform how people learn, we can calculate how to construct the future by investing in brainpower. Educational policies and reform ideas now routinely espouse such a science of future-building.<sup>15</sup>

For curriculum researchers this position raises serious political questions. The focus on a science of learning and learners in a high-tech computerized knowledge economy deflects attention away from wider social issues and questions about the links between school and society. The science of skills and know-how evacuates curricular knowledge of its authority and replaces the terms “education,” “school,” and “curriculum” with “learning,” “learning styles,” and “learning centers.” The result, oddly enough in a knowledge economy or a knowledge society, is that knowledge seems to lose all its authority and the curriculum is emptied of content.<sup>16</sup> Moreover, the implantation of computers into schools, according to its critics, has contributed to an ideological “nightmare” that promotes certain visions of “what counts” as knowledge, uncritically accepts that the purpose of schooling should be to secure future economic competitiveness, and dehumanizes learners by positioning them as “human capital” or mental components of a “man-machine system.”<sup>17</sup>

In short, a concern for “official knowledge” and the “intellectual center” of schooling has been replaced by skills,



competencies, brainpower, and the “science of 21st century learning,” and this move has obscured the knowledge-based curriculum from large areas of educational debate. What might this mean in practice?

### Soft Openings

In 1993, the British think-tank Demos launched its quarterly magazine with a feature on the future of education, focusing in particular on the work of Howard Gardner, then co-director of Project Zero at the Harvard Graduate School of Education. In his essay entitled “Opening Minds,” Gardner articulated the concerns of a “wave of reform” that was dissatisfied with “overblown bureaucracy” and appalled by the uniformity of “school knowledge” with its emphasis on logical and linguistic intelligence. Gardner’s recommendations for the design of the ideal school of the future included a more expansive view of multiple intelligences, and a “student-curriculum” brokerage system that would help to match students’ profiles, goals, and interests to particular curricula and styles of learning, a task for which interactive technology seemed to offer considerable potential. Many of these ideas were the subject of ongoing development and research at Project Zero.<sup>18</sup>

The ideal vision of a negotiable and flexible curriculum proposed by Gardner in his “Opening Minds” essay were later realized in a major curriculum development program, also called Opening Minds, launched as a pilot project in the United Kingdom in 1999 by the Royal Society of Arts, Manufactures and Commerce (RSA). Here is a concrete example of the globalization of curriculum reform ideas beyond the usual institutional organs and state boundaries. Openings Minds was originally intended

to explore a new curriculum model for the twenty-first century, one that put the personal skills, needs, and competencies of learners first while also emphasizing the skills of information handling and knowledge management required in a changing economic and working environment. Opening Minds built upon ideas elaborated in the Gardner essay, aligning them with the RSA's history of intervention in the future of work, "enterprise education," and "education for capability."<sup>19</sup>

Opening Minds is emblematic of a particular type of curriculum reform that emphasizes a "softening" and an "opening up" of the curriculum to both the alleged training needs of the knowledge-based economy and the individual needs and interests of children themselves. Rather than focusing on academic "performance," the specialization of subjects, skills, and procedures and the selection, sequencing, and pacing of pedagogy by teachers, Opening Minds offers a "competence" curriculum. Its competencies approach

refers to a complex combination of knowledge, skills, understanding, values, attitudes and desire which lead to effective, embodied human action . . . at work, in personal relationships or in civil society . . . . Competence implies a sense of agency, action and value . . . . The spotlight is on the accomplishment of 'real world tasks' and on a multiplicity of ways of knowing—for example, knowing how to do something; knowing oneself and one's desires, or knowing why something is important, as well as knowing about something.<sup>20</sup>

Competence is realized in the form of projects, themes, and experiences, with learners given greater apparent control over the selection, sequence, and pace of their learning. Competences theories articulate learning as an active and creative practice of constructing personally authentic meanings and understanding and regulating the self; competencies curricula are therapeutic

and introspective, empowering and emancipatory. The theoretical and practical origins of competence lie in the 1960s and 1970s, when social scientists and radical educators alike began to celebrate the active, creative, meaning-making potential of individuals—it shares its intellectual origins with the learning sciences—but it is now articulated as behavioral competences and personal learning profiles.<sup>21</sup>

Opening Minds emphasizes five categories of competence: (1) learning how to learn, thinking systematically, creative talents, and handling ICT and understanding its underlying processes; (2) citizenship, ethics, and values, cultural and community diversity, and understanding social implications of technology; (3) relating to people, teamwork, communication, and emotional literacy; (4) managing situations, time management, change management, being entrepreneurial and initiative-taking, and managing risk and uncertainty; and (5) managing information, accessing, evaluating, differentiating, analyzing, synthesizing, and applying information, and reflecting and applying critical judgment. In practice, Opening Minds is usually arranged as a series of thematic and cross-curricular projects.

By early 2012, over two hundred schools officially run some form of Opening Minds competencies curriculum, the program includes its own showcase school and a network of best practice “family schools,” and it has been spun off as an independent organization. It has generated a related “area-based curriculum” approach focused on building curricula programs from the needs of specific localities and communities. Instead of being a centrally managed, bureaucratic, and uniformly programmed curriculum, Opening Minds has been interpreted and enacted in multiple different ways. It is promoted as a curriculum framework to be recontextualized according to the specific ethos and

history of each school that adopts it, and it positions teachers as creative curriculum actors rather than merely its relays. It has become a well-known “brand” in the UK educational marketplace, with new schools required to pay a subscription fee for participation.

The soft openings of the curriculum embodied by Opening Minds signify a greater porosity and interpenetration between school knowledge, vocational knowledge and skills, and everyday knowledge. Whereas the traditional curriculum associated with conservative restorationism has tended to drive centrifugally inward toward a common core of academic knowledge, the soft openings approach develops centrifugally outward into economic and cultural domains. The competencies framework switches together an entrepreneurial vocabulary of initiative, risk, teamwork, brainpower, and so forth with a civic discourse of community values, empowerment, and cultural diversity. Flexibility in the Opening Minds curriculum allows learners to concentrate on interconnected contemporary topics, community sources, and real cultural contexts.

### **Boundless Creativity**

A complementary approach is advocated in the United States by the major Partnership for 21st Century Skills, an advocacy coalition with members from all the major multinational computing, media, and educational services corporations. The mission of P21 is to promote “21st century student outcomes,” which it defines through a wide-ranging analysis of learning science theories and their appropriateness for life and work in the global informational and economic landscape. P21 has wide acceptance in the business community, was initially funded in 2002

with \$1.5million from the US Department of Education, is connected to many state departments of education through its State Leadership Initiative, and in 2011 produced bipartisan policy guidance on “21st Century Readiness for Every Student” that was introduced in both chambers of Congress.<sup>22</sup>

P21 draws its conceptual and intellectual momentum from a heterogeneous mixture of sources and associations (though perhaps its most obvious point of comparison is *A Nation at Risk*, with which it shares concern for American global competitiveness in a flat world but which it does not reference at all). In the white paper setting out the mission and vision for P21, progressive educator John Dewey is cited approvingly, along with pioneering psychological work on constructivism-, a range of cognitive science perspectives, frameworks of creative skills, emotional intelligences, and multiple intelligences, and assorted media and technology theories from the 1960s to the present. These theories are switched together with discourses of “boundless creativity,” innovation, and competitiveness in the global economy. P21 sets out to promote boundlessly creative and innovative learners.

Accordingly, the necessary skills and “multidimensional” abilities to be mastered include (1) creativity and innovation, including creative thinking and acting on creative ideas; (2) critical thinking and problem solving, including the ability to use reason, use systems thinking, and make judgments and decisions; (3) communication and collaboration, including teamwork; (4) information and media and technology skills, including information management, media analysis, the creation of media products, and using ICT for research and appropriate networking; and (5) life and career skills, especially flexibility and adaptability, initiative and self-direction, social

and cross-cultural interactions, productivity, and leadership and responsibility. These are all framed by “interdisciplinary 21st century themes” that address global issues, finance, economics, business and entrepreneurship, civics, and personal and environmental responsibility.<sup>23</sup>

P21 acts as a connecting switch between the emancipatory and empowering discourse of constructivism and creativity and the economic discourse of competition that has its origins in the apparent crisis of American schooling to meet the changing needs of industry—here is a nation at risk, once again, in a flat world of global connectivity. It presents a vision of boundary-free creativity, supported by emerging scientific theories of learning, as the panacea to this crisis. The P21 framework is a recipe for a high-tech competencies curriculum.

Despite clear differences with *Opening Minds* in the United Kingdom, both programs contribute to the same blend of innovation and personal emancipation, as well as a reorientation to knowledge and learning. Knowledge is reconfigured as thematic, modularized, connective, boundary-free, hybrid, and generic; learning is reconfigured as competence, thinking, problem solving, and “learning to learn.” This is in line with the style of thought associated with advocates of the knowledge economy: competitive advantage is to be secured by integrating people’s behavioral competences with modularized task components.

### **Curriculum Hybridity**

The soft openings trend in curriculum design, as shown by *Opening Minds* and P21, promotes learning that will prepare students to deal with cultural, economic, and technological change. Disciplinary knowledge and subject expertise has been marginalized

by such future-focused agendas. Whereas subject knowledge is organized according to the principle of insularity, its difference from everyday or commonsense knowledge, the soft open curriculum for the future is organized according to principles of connectivity and hybridity. Connectivity and hybridity reject the importance of boundaries between subjects and disciplines, and educational hybridizers instead argue for greater integration and blurring between academic, workplace, and experiential learning. Curriculum connectivity and hybridity celebrates malleable boundaries, integration, and interpenetration.<sup>24</sup>

The soft openings trend represented by Opening Minds and P21 is continuous with international policy agendas that put the emphasis on the brainpower and human capital required by the future knowledge society. International comparative tests and studies of educational performance undertaken by the likes of the OECD and the International Association for the Evaluation of Educational Achievement (IEA) demonstrate how the competences and skills associated with the soft openings trend have become a global testing standard to allow politicians to assess their national performance and achievements against competitors.<sup>25</sup> These comparative instruments are perhaps the “hard openings” to the soft openings of Opening Minds and P21.

The basic assumptions underlying the argument for hybridity have been criticized both theoretically and empirically. From the theoretical perspective, it is argued that a curriculum is impossible without a clear separation of school knowledge and experiential everyday knowledge. Simply put, the idea of a curriculum is to support students’ acquisition of new knowledge that they cannot gain through experience. Experience may be a powerful source, but it is no basis for reliable knowledge or a curriculum.<sup>26</sup> Empirical studies have also queried the assumptions

of the soft opening trend in curriculum. Such studies show that the high-tech/high-skills/high-wage future promised by such programs has largely turned out to be imaginary. In fact, there is now a worldwide surplus of highly educated graduates—raw brainpower—who are unable to win jobs commensurate with their qualifications.<sup>27</sup>

This chapter has begun to address questions about what knowledge is to be included in the curriculum of the future, what legacies it draws on, and what futures it envisions. The soft openings trend represented by Opening Minds repositions knowledge as “competence” while P21 stresses informational skills. These programs give authority to new ways of knowing and new forms of brainpower that are understood to be more relevant and appropriate to life and work in the digital age, although these assumptions have been questioned on both theoretical and empirical grounds. The next chapter looks for alternative examples of possible curricula of the future, locating them in an “open” world of complex network systems.



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# **The Future of the Curriculum**

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**By: Ben Williamson**

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