Foreword

We need to think harder about how we prepare young people for tomorrow’s world. In the past, education was about teaching students something. Now, it’s about making sure that students develop a reliable compass and the navigation skills to find their own way through an uncertain, volatile, and ambiguous world. Now, schools need to prepare students for a world in which most people will need to collaborate with people of diverse cultural origins and appreciate different ideas, perspectives and values; a world in which people need to decide how to trust and collaborate across such differences; and a world in which their lives will be affected by issues that transcend national boundaries. Technology has become the key to bridge space and time in all of this.

These days, we no longer know exactly how things will unfold. We are often surprised and need to learn from the extraordinary, and sometimes we make mistakes along the way. And it will often be the mistakes and failures, when properly understood, that create the context for learning and growth. A generation ago, teachers could expect that what they taught would last their students a lifetime. Today, schools need to prepare students for more rapid economic and social change than ever before, for jobs that have not yet been created, to use technologies that have not yet been invented, and to solve social problems that we don’t yet know will arise.

How do we foster motivated, engaged learners who are prepared to conquer the unforeseen challenges of tomorrow, not to mention those of today? The dilemma for educators is that routine cognitive skills—the skills that are easiest to teach and easiest to test—are also the skills that are easiest to digitize, automate, and outsource. There is no question that state-of-the-art knowledge and skills in a discipline will always remain important. Innovative or creative people generally have specialized skills in a field of knowledge or a practice. And as much as ‘learning to learn’ skills are important, we always learn by learning something. However, educational success is no longer about reproducing content knowledge, but about extrapolating from what we know and applying that knowledge in novel situations. Put simply, the world no longer rewards people for what they know—Google knows everything—but for what they can do with what they know. Because that is the main differentiator today, education today needs to be much more about ways of thinking, involving creativity, critical thinking, problem-solving, and decision-making; about ways of working, including communication and collaboration; about tools for working, including the capacity to recognize and exploit the potential of new technologies; and, last but not least, about the social and emotional skills that help us live and work together.

Conventionally, our approach to problems was to break them down into manageable bits and pieces and then to teach students the techniques to solve them. But today we create value by synthesizing the disparate bits. This is about curiosity, open-mindedness, and making connections between ideas that pre-
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Viously seemed unrelated, which requires being familiar with and receptive to knowledge in other fields than our own. If we spend our whole life in a silo of a single discipline, we will not gain the imaginative skills to connect the dots where the next invention will come from.

Equally important, the more content knowledge we can search and access, the more important becomes the capacity to make sense of this content—the capacity of individuals to question or seek to improve the accepted knowledge and practices of their time. In the past, you could tell students to look into an encyclopedia when they needed some information, and you could tell them that they could generally rely on what they found to be true. Today, literacy is about managing non-linear information structures, building your own mental representation of information as you find your own way through hypertext on the Internet, and dealing with ambiguity—interpreting and resolving conflicting pieces of information that we find somewhere on the Web.

Perhaps most importantly, in today’s schools, students typically learn individually and at the end of the school year, we certify their individual achievements. But the more interdependent the world becomes, the more we need great collaborators and orchestrators. Innovation today is rarely the product of individuals working in isolation but an outcome of how we mobilize, share, and link knowledge. In the flat world, everything that is our proprietary knowledge today will be a commodity available to everyone else tomorrow. Expressed differently, schools need to drive a shift from a world where knowledge is stacked up somewhere, depreciating rapidly in value, towards a world in which the enriching power of communication and collaborative flows is increasing. And they will need to help the next generation to better reconcile resilience (managing in an imbalanced world) with greater sustainability (putting the world back into balance).

This is a tough agenda. What is certain is that it will never materialise unless we are able to clearly conceptualise and measure those 21st century knowledge areas and skills. Without rigorous conceptualisation, we will not be able to build meaningful curricula and pedagogies around these knowledge areas and skills. And, at the end of the day, what is assessed is what gets taught. This volume makes a major step in advancing this frontier. It examines a range of skills that are important; it looks at innovative measurement methods to make these skills amenable to quantitative assessment in ways that they become activators of students’ own learning, and it looks at how we can learn to drink from the firehose of increasing data streams that arise from new assessment modes.

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