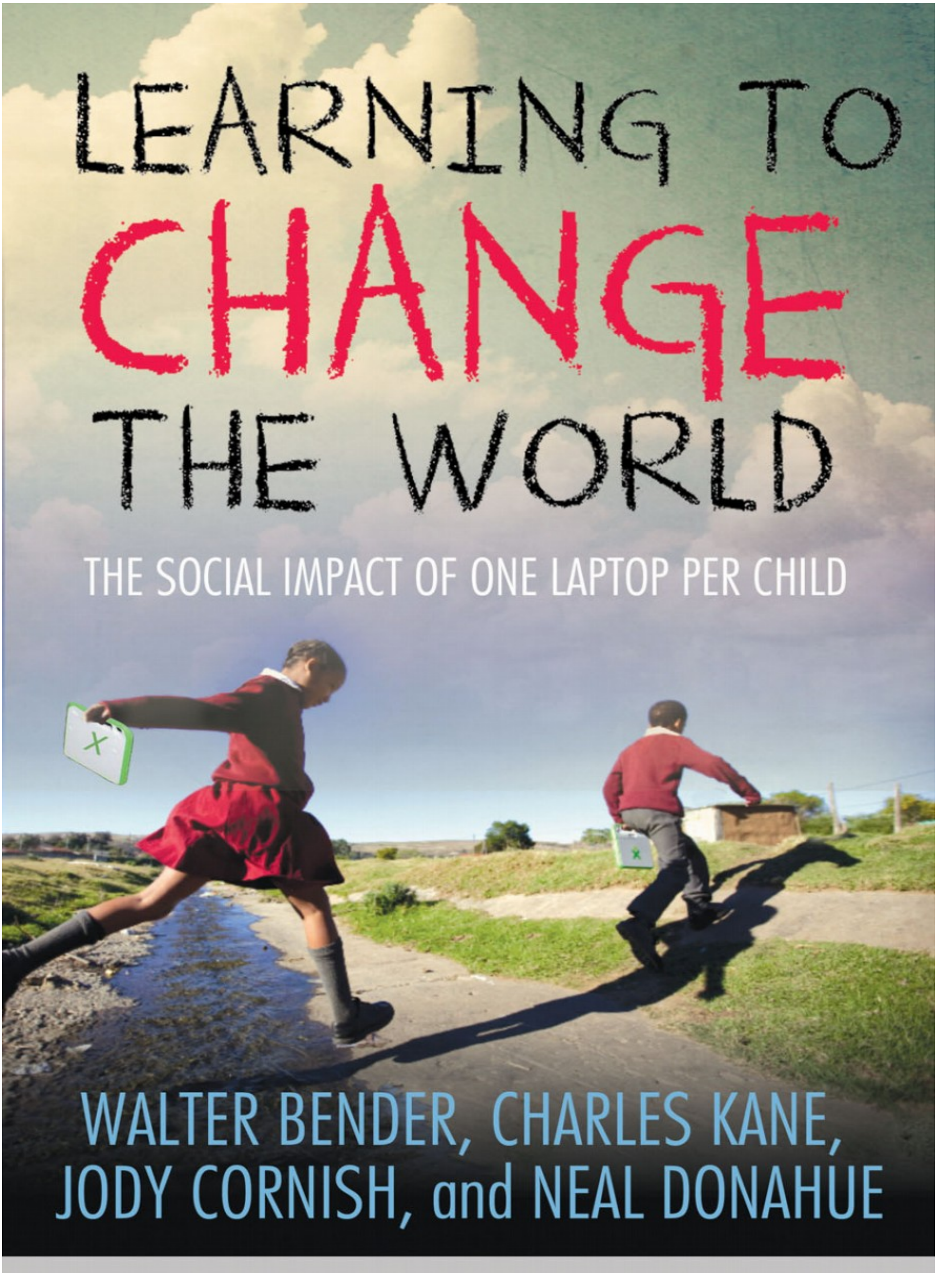
LEARNING TO
CHANGE
THE WORLD
THE SOCIAL IMPACT OF ONE LAPTOP PER CHILD
WALTER BENDER, CHARLES KANE,
JODY CORNISH, and NEAL DONAHUE

TWO

THE ORIGINS OF ONE LAPTOP PER CHILD

"Where the computer's true power as an educational medium lies—is in the ability to facilitate and extend children's awesome natural ability and drive to construct, hypothesize, explore, experiment, evaluate, draw conclusions—in short to learn—all by themselves. It is this very drive…that is squelched by our current educational system." —Seymour Papert, *Ghost in the Machine*

For most people, the story of One Laptop per Child (OLPC) begins in 1999 in the very small, rural village of Reaksmy, Cambodia, an eight-hour drive north from the capital of Phnom Penh. As described in a 2007 *60 Minutes* interview with Nicholas Negroponte, the founder of OLPC, the Negroponte family founded and funded a local school in this village. They gave the school laptops that Negroponte bought on eBay, provided a generator to power them, and set up satellite Internet connectivity. The immediate results of this project were an increase in school attendance and family involvement in learning when children brought their laptops home to share.

Two years later, when Negroponte visited Reaksmy to see what longer-term impact the technology had enabled, he was struck by one clear result: the children were no longer limited in their learning to interactions with their immediate physical environment. Negroponte recalled that these children had become fans of Brazilian soccer teams of whom they'd previously been unaware. Through computers and the Internet, the children had been exposed to a broad range of information, culture, and experience. The interests of the children, and the context in which they operated, had gone global, and the very culture of learning had shifted. In the interview, he wondered aloud, "Has the tooth fairy arrived in this one village—or could you do this for every child on the planet?"

For Negroponte, Reaksmy was an example of the transformative power of technology. From this experience OLPC derived what would become our core principles. It was clear that the technology distribution approach taken to date in developing countries—providing children with access to outdated technology through a trickle-down approach of periodic government purchases, donor contributions, or machines acquired through technology recycling programs—would always undervalue the potential of technology to transform education. This approach would never give enough children access to the right technology and, as a result, would fail to change the culture of learning. The experience in

Reaksmy suggested that computers—used correctly—could enable a huge leap forward in the learning of children in even the most remote environments. Also, and in contrast to popular opinion at the time, the project demonstrated that with some ingenuity, connectivity could be achieved in rural areas at a low-enough cost to make universal coverage feasible. The experience in Reaksmy taught us that real impact would result only if the right technology was available at a price that would enable all children to have access to computers. (A detailed case study of Reaksmy is included in the appendices at the end of this book.)

Steven Johnson, author of *Where Great Ideas Come From*, notes that real breakthroughs rarely occur as independent and unconnected events—eureka moments. Rather, they tend to result from a slow maturation of ideas that evolve and become interconnected in new ways over time. In the case of OLPC, the eureka moment described in the origin story of the Cambodia epiphany—which created the momentum to build the rugged, low-cost XO laptop as a tool to empower learning for children in developing countries—belongs to Negroponte. However, Negroponte came to Reaksmy armed with decades of pioneering thinking drawn from collaborations with individuals at the Massachusetts Institute of Technology (MIT) and elsewhere about how to harness technology to revolutionize education and enable learning.

As Negroponte noted in his 2006 talk at TED—a conference series started in 1984 to bring together people from the worlds of technology, entertainment and design to share ideas with the potential to change the world—"some people think the $100 laptop happened a year ago or two years ago, or we were struck by lightning. This actually has gone back a long time, and in fact back to the 60s." This chapter provides an overview of the breakthrough ideas that drove the development of the XO computer and informed our conviction about how to transform education for children in developing countries. The ideas extend back to fundamental debates in education and social change and have their roots in the work of the scientists and engineers who first imagined applying computer technology not just to scientific and military applications but also to education.

A REVOLUTIONARY APPROACH TO LEARNING

In his 1993 book, *The Children's Machine: Rethinking School in the Age of the Computer*, educational theorist Seymour Papert opens with a humorous story about a group of time travelers made up of nineteenth-century surgeons and teachers visiting twentieth-century hospitals and schools. Time-traveling surgeons brought to an operating room would understand that a surgery was in process, but would be baffled by basic concepts of sterile spaces to prevent infection, anesthesia to prevent pain, and even the need to retain versus remove blood as a means of saving a life. On the other hand, a time-traveling grade school teacher could easily step into the role of educator in front of a classroom full of students. Some of the technology—such as the use of overhead projectors and whiteboards that capture written notes electronically rather than with chalk and eraser on a blackboard—might be daunting, but the general approach to teaching would have changed little over the decades.

In the majority of classrooms around the world, it is a safe assumption that there will be a teacher at the front of the classroom, instructing the students by transmitting knowledge that they are expected to retain and play back to the teacher when requested. As children age, they will be asked to integrate the knowledge they possess with the new knowledge they receive. The teacher will operate within the Prussian system of education, one that embraces compulsory attendance, specific teacher training, a national curriculum, and standardized student testing. This format of this education—commonly referred to as instructionism—was the basis for education around the world for much of the nineteenth and twentieth centuries.

Despite its pervasiveness, many argue that instructionism is largely failing most students. In both the developed and developing world, drop-out rates are high, in particular among children from lower-income families and less privileged circumstances. In an iInstructionist classroom, it can be difficult for children to make a link between what they are learning in school and anything that is of obvious and direct benefit to them or their families. For example, the choice between attending school and spending time helping to prepare food for sale to supplement a family's meager income represents a real economic tradeoff. Without clarity about the practical benefits of making the sacrifice to continue in school, the choice to leave seems a foregone conclusion. Further, children who do continue with school are often ill-prepared to find a job, and end up competing in the same market with others who elected to leave school early, often at some disadvantage. And these children are, needless to say, wholly unprepared to create new jobs and opportunities within their communities.

In contrast to instructionism is the concept of constructionism, which focuses not on imparting knowledge to children, but rather on building a core set of skills that enable them to be problem-solvers, critical thinkers, and innovators. Constructionism suggests that children learn more effectively through activities that allow them to discover and apply ideas as they learn, rather than having ideas and information broadcast to them by an instructor. The roots of constructionism can be found in the constructivist theory of developmental psychologist Jean Piaget, who suggested that “children are not empty vessels to be filled with knowledge” as traditional learning approaches suggest, “but active builders of knowledge—little scientists who are constantly creating and testing their own theories of the world.” Constructionism builds on Piaget’s constructivist insight about the importance of experiential learning by suggesting that it is through active creation of tangible things that can be shared with others that learning truly happens. Children learn through doing, making, and sharing; therefore, if you want more learning, you need more doing, making, and sharing. Constructionism also recognizes and emphasizes that learning is not a solitary undertaking; children learn more and better in a social context in which they are actively involved in shaping their own learning experience, and in which they do so through interaction with others.

One way to understand the difference between instructionist and constructionist approaches to learning is to imagine different approaches to a cooking class. For someone new to a kitchen, an example of instructionism would be taking a class from an expert that conveys the basics of food preparation and cleaning, knife skills, and the chemistry of cooking. Applying these skills while following a given recipe can create tasty results. Where the approach to learning edges into constructionist territory, however, is when we imagine creating a “playspace” in a kitchen where novice chefs are encouraged to try combining ingredients in new ways, discuss the results with their fellow classmates, and continue to experiment. The emphasis in constructionism is on giving learners the space they need to make their own judgments about what they want to do in the service of learning and creating.

Constructionism is often cast as the polar opposite of classic instructionism. However, rather than thinking in terms of constructionism versus instructionism, a more nuanced understanding focuses on applying the insights of constructionism to creating a specific type of learning experience for children. In this context, the role of the teacher evolves from instructor to guide or facilitator. By understanding that knowledge is not simply transmitted from teacher to student, but actively constructed by the mind of the learner, the learning environment becomes less a one-way broadcasting of information and ideas, and more an active construction zone in which the building blocks of information and ideas are provided for children to explore.

An easy way to understand how instructionism and constructionism can work together to provide a foundation for creativity is to consider LEGO™. Walk into any LEGO megastore these days, and you will see kits of LEGOs that are pre-packed with precisely the pieces you need to build a detailed model that is outlined in visual instructions included with the kit. Success in following the instructions results in a replica of the picture on the outside of the LEGO box, an exercise limited in creativity. For those who know LEGO well, however, the choice LEGO made not to include glue in the box, unlike most model kits, was a deliberate one, intended to encourage children to take apart the models they have built and put them together in new ways. By giving children instructions to follow at the outset, LEGO builds their confidence and gives them the basic construction skills they need to then venture out on their own to create something wholly new. In other words, they provide just enough instruction to enable and accelerate construction of a new model.

For OLPC, the insights of constructionism seemed particularly relevant for children in less-privileged circumstances. If one of the key barriers to valuing education in environments like this is the disconnect between the information and knowledge being acquired and the opportunities it creates for children and their families, focusing on building problem-solving skills and innovative (even entrepreneurial) capabilities begins to make sense. The experiential-learning approach taken in a constructionist learning environment, done well, builds real skills that students can then transfer to novel contexts. The emphasis on making things that are tangible and shareable with others starts to bridge the chasm between the classroom and the outside world. By encouraging experimentation and exploration, educators help children begin to realize that they might experiment with changing their immediate surroundings as a form of problem solving.

At a more fundamental—and, to some, more radical—level, the type of skills being built through a constructionist-learning approach create an individual-level foundation for social change. In contrast to instructionism, which reinforces the individual as a passive recipient of a given social reality imparted by authorities of the system, in a constructionist learning environment, the fundamental lesson to be taught is active participation. Children are taught to explore, question, and experiment. They learn to be resourceful in bringing together different types of information to solve a problem, and they are encouraged to work with others to share ideas and craft new solutions. As Paulo Freire—the Brazilian educator and theorist—explained in his *Pedagogy of the Oppressed*, it is only by empowering individuals living in disadvantaged situations with the skills *they* need to change their environment that change is truly possible. Even in an exercise as simple as building a car from blocks, a child is learning not that he must adapt himself to the world around him (i.e., building an exact replica of a preset type of car), but that he has an active role in shaping this world (i.e., he has the power and freedom to envision and build the type of car he desires). This is a fundamentally revolutionary philosophy, and it is foundational to the approach that OLPC attempted to take, to change the culture of learning in developing countries as a step toward enabling broader change.

CREATING A "THING TO THINK WITH"

As a theory of education, constructionism is largely agnostic about the role of technology. OLPC, however, saw the potential of technology to be applied to education in a way that would support a constructionist educational approach and match both the learning needs of children and the specific circumstances in which children in developing countries live. Papert's vision, at its simplest, is that a computer could, for children, become a "thing to think with" that would aid in learning essential problem-solving skills. As with the educational and social change underpinnings of our approach, the core technology ideas trace their roots back to the earliest days of computing and to a fundamental shift in our understanding of the types of problems that computers can help human beings to solve.

From the development of the earliest, room-sized prototypes in the 1940s, the hope for computers was that they would extend human ability for complex (mostly mathematical) problem solving. With the creation of the graphical user interface at Xerox PARC in the 1970s, the paradigm of files and folders, windows, and icons predominated, and computers became primarily a tool to enable marginal productivity improvement in tasks for office workers. At OLPC, we have striven to reignite the power of the computer as a tool for interactive problem- solving and creativity; this is at the heart of how we envisioned the XO as a learning tool for children.

In looking back at the specific history of constructionist uses of technology for education, a number of examples stand out that demonstrated possibilities on two fronts vital for OLPC. First, was the exploration the applicability of technology as a means of aiding constructionist learning for all children. Second was the possibility of leveraging technology as a means of leveling the educational playing field for children in less-developed countries who came from poor (and primarily rural) backgrounds.

As early as the 1960s, Seymour Papert began conducting experiments in using technology to help children think and learn. Working with colleagues from the pioneering technology research and services company Bolt, Baranek and Newman (BBN) and MIT , Papert drew on artificial intelligence, mathematics, and developmental psychology to cocreate Logo , the first programming language written especially for children. Fred Martin, the co-creator of the now ubiquitous LEGO/Logo robotics competitions, described their goal as enabling people (including children) to "use computers to manipulate things more familiar than the then-prevalent numbers and equations."

Papert and his collaborators aimed to create a program language with a "low floor" and a "high ceiling." In other words, a language that would make it easy for a novice programmer—such as a child—to get started writing programs, but that also had the power and the "sky is the limit" capability to be useful to an experienced programmer. And they were successful, in that Logo became very popular in elementary and middle schools and was also used in computer science classes at universities, such as at UC Berkeley, where Brian Harvey has taught "Computer Science Logo Style" for more than two decades.

In its early days Logo was used to control a simple robot, known as the "Turtleturtle.". The original Logo turtle, invented by Paul Wexelblat at BBN, was known as Irving. He had touch sensors and could move forward and backward, rotate, and ring his bell. Children would type commands such as FORWARD 50 to make Irving go forward 50 steps, or RIGHT 90 to make him turn right ninety degrees. Irving carried a pen, so children could make drawings on a piece of paper. By using Irving, children engaged in basic problem solving, with Irving giving immediate, non-written feedback so that problems (bugs) could be spotted, all while having fun. Later versions had a turtle-shaped on-screen cursor, which could be given instructions for movement and could produce vector graphics when given instructions to draw.

Logo was widely recognized as a breakthrough in teaching computing fundamentals to novice programmers, and its use has continued to the present day. Educators emphasized that by using a turtle, children are taught concepts of geometry by connecting what the turtle does to the way that they would move their own bodies. Through this process of "body syntonicity," children come to understand how an external object works by thinking about their own bodies. In other words, the turtle became an "object to think with" and was a powerful way to introduce the idea of programming and of exerting independent control over your outcomes. As Papert would later say, "Logo became a culture, a way of rethinking learning."

One of the earliest pilot projects testing the potential of technology for constructionist learning within an organized school context took place in 1985 in Boston, Massachusetts. At the James W. Hennigan Elementary School in the ethnically diverse Jamaica Plain neighborhood, Papert implemented a project he called "Children as Software

Designers." Each week for three months, children would spend three or four hours working on a project to build their own piece of software. The program built on notions that programming and debugging ensured that children would learned in a more complete and effective way that built their skills and sense of empowerment. Additionally, what Papert realized through the Hennigan project was that the computer both transformed the learning experience and quickly became absorbed as a part of the culture of learning. When asked what they were doing, children who at the beginning had answered "programming" or "working on the computer" very quickly began to talk about what they were creating, with answers like "building a skeleton" or "writing a story." The computer had essentially become an invisible but essential tool for learning. Papert built on this pilot to launch "The School of the Future," a multi-year project integrating computers into the formal learning curriculum at the school.

Papert's early work resulted in the creation of computer tools specifically designed to aid the learning of children, as well as successful experiments that showed that technology could aid children in gaining sophisticated problem-solving skills. The question remained whether constructionist applications of technology were appropriate and applicable in less-sophisticated educational environments. In other words, could computers be a tool for accelerating education for less-privileged children starting from a lower baseline?

In 1999, Papert began an interesting exploration of the potential of constructionist learning through technology closer to home in an unusual setting: the Maine Youth Center, a prison for troubled teenagers in South Portland, Maine. The project focused specifically on exploring the potential for constructionist applications of technology to drive learning for at-risk youth with low motivation and poor academic performance levels. In partnership with David Cavallo of the Media Lab and Gary Stager from Pepperdine University, Papert worked with ten of the two hundred youth between the ages twelve and twenty who were incarcerated at the facility for crimes ranging from vandalism and theft to murder. The participants had been orderd by the court to attend school and found themselves working with Stager and Cavallo in a one-room schoolhouse equipped with a PC, digital camera, scanner, and computerized LEGO blocks.

Learning happened without a set curriculum, with students collaborating on long-term projects that resulted in inventions as diverse as a LEGO phonograph and the creation of innovative computer games. As Stager later explained, the project was driven by eight "big ideas" including: a focus on learning by doing;, use of technology as a building material and as a tool for learning; learning for the sake of learning rather than to meet a pre-defined goal; taking the time needed to complete a job; and a level playing field between teachers and students. Perhaps the most important of the big ideas, however, was the concept of “hard fun.” For students with a poor self-image and a track record of misbehavior and low accomplishment, sticking with something that was difficult and being willing to admit and learn from mistakes were vital skills. In other words, students would learn much more than a set of technical skills: they would develop an understanding that they can contribute positively to the world around them.

Maine was also the site of early exploration of the potential for transforming the culture of learning within a community by ensuring comprehensive availability of computers for all children. As Antonio Battro, chief learning officer of OLPC pointed out, changing a culture of learning is not unlike immunizing a population against disease: you don’t vaccinate every tenth child and hope for a positive result. In Maine in 2002, then-Governor Angus King, working with Papert, became convinced that “one-to-one” distribution of computers—that is, a computer for every child—was the only meaningful way to deploy computers to school children. His conviction resulted in the creation of the Maine Learning Technology Initiative, a state legislature-–approved, $41- million effort to ensure distribution of Apple iBook computers to more than thirty thousand seventh- and eighth-grade students.

The implication of projects such as those in Boston and Maine was to reinforce the potential of technology to transform education and to underscore that all children take to computers with equal ease, regardless of baseline skill level or the context in which they encounter them. The potential for computers as a learning tool was profound: it became increasingly clear that personal computers could enable children to “learn learning.”.

LEVELING THE EDUCATIONAL PLAYING FIELD

In addition to noting that innovation emerges when several existing ideas come together in new ways, Steven Johnson also notes that breakthroughs emerge most often in environments in which people are encouraged to explore, interact, critique, and collaborate. In the case of OLPC, it was MIT, and specifically the MIT Media Lab, that provided the space in which the ideas of Papert and others such as David Cavallo (who cofounded MIT's Future of Learning group with Papert) and computer pioneer Alan Kay (who, among other accomplishments, conceived the Dynabook, which was the conceptual basis for laptop and tablet computers and e-books) came together to create a vision of how technology could accelerate education for children in the developing world in particular.

The mission of the Media Lab, founded in 1985 by Negroponte and Jerome Weisner (science advisor to President John F. Kennedy, and president of MIT from 1970 to 1980), was to "invent and creatively exploit new media for human well-being without regard for present-day constraints." Members of the Media Lab team had spent decades demonstrating that computers could be powerful accelerators for learning for children, even (or perhaps especially) in contexts in which the formal educational system is lacking and the baseline skill and motivation levels of children are lagging. Building on this work, specific experiments were conducted within the Media Lab to explore the impact of constructionist technology in the most challenging of contexts: poor and rural environments in developing countries.

One of the earliest experiments in using computers as a tool for primary school education in the context of a developing country context took place in 1982, in a project in Paris that was funded by the French government. The well-known French journalist and politician Jean-Jacques Servan-Schreiber, building on ideas he emphasized in his book, *The Global Challenge*, founded the World Center for Personal Computation and Human Development to promote information technology in France. Servan-Schreiber tapped Papert and Negroponte to conduct a pilot project in Senegal, testing the ability of rural children to engage directly with computers for learning. Children in rural villages were provided with Apple II computers—some of the earliest personal computers—loaded with the Logo program. In the villages where Papert and Negroponte were working, there was no standard written form of the local language, Wolof—the script used was sometimes Arabic, sometimes Roman, and often a pidgin mix. Papert developed a written form of Wolof suitable for Logo, and built a Wolof version of Logo for children to use. Despite these formidable challenges, the experiment was a success: children engaged in sophisticated problem- solving. Similar positive results were seen in later pilots in Pakistan, Thailand, and Colombia, among others. (Rodrigo Arboleda, who would later become president of the OLPC Association, was instrumental in launching the Colombia pilot.)

In the 1990s in Costa Rica, the MIT Media Lab was involved in one of the earliest multi-stakeholder partnerships for education (MSPEs), which experimented in bringing together government, private sector, civil society, and academic institutions to enhance the quality and availability of education. The primary focus of the initiatives, which are coordinated by the Omar Dengo Foundation, has been improving education by leveraging technology in schools all over the country, including extremely rural areas and small towns and villages in hard-to-access areas. The initiative is estimated to have benefited over 1.5-

million Costa Ricans to date, in a country with a total population of 4.6 million. (It was in a rural township in Costa Rica that Claudia Urrea—who would become director of learning at OLPC—conducted research on one-to-one computing.)

In 2000, the Media Lab created the Digital Nations Consortium, which was specifically targeted at extending the benefits of the "digital revolution" to underserved populations across the world, including in particular children in developing nations. Digital Nations aimed to leverage technology to improve education, reduce poverty, enhance healthcare, and support community development.

Taken together, projects such as those at the World Center, the Omar Dengo Foundation, and Digital Nations, illustrated that constructionism and technology have the potential to do more than revolutionize the learning of individual children. Until very recently in human development, chances were great that if you were born poor, you would die poor. Social and economic mobility were strictly limited by political, social, and economic oligarchies that condemn large swaths of the population to limited existences and unrealized potential. Underlying the emphasis on constructionism is the belief that, deployed correctly, education and technology have the potential to break down these oligarchies. Better- educated and empowered citizens have the capability to drive necessary social change, in particular in the context of developing countries. And children who have developed entrepreneurial skills are more apt to persevere and succeed in contexts where there is not a level playing field.

THE BIRTH OF AN IDEA

In the multiplicity of experiments in the United States and other countries focused on technology-driven constructionist education, some patterns emerged. These became crystallized in five core principles that OLPC codified about what was necessary to drive a new type of learning for children using technology:

• *Low Ages*. It is important to work with young children, between six- (or younger) and twelve- years of age—the years in which their core cognitive skills and their attitudes toward learning are developing. For children at these ages, the computer is both a toy to play with and a tool to learn with; the line in the child's mind between play and learning is blurred and the rewards of "hard fun" are reinforced.

• *Child ownership*. Children must own—both literally and figuratively—their individual learning and development. By having a computer of their own, children are much more likely to explore and learn in the informal, unfettered way that truly drives development of creativity, innovative thinking, and problem-solving skills. Children must have use of the computers day and night, for their own use and to share with their families.

• *Saturation*. True success is every child's having access to their own computer—a form of "digital saturation" that can shift the culture of learning for an entire community. It is only when the whole community reinforces the importance of education and children receive support from a variety of societal institutions that social change is truly possible.

• *Connection*. The ability of people to share ideas with and access ideas from others is a prerequisite for innovation. A successful program must ensure that children are able to collaborate and share as part of their individual learning process. Additionally, it must recognize the importance of community connectivity to the broader global society.

• *Free and Open Source*. The ideals of the free software community—which emphasize total transparency, free sharing of ideas, and constructive critique to improve solutions over time —must be embraced both in the learning process for individual students and in the manner in which educational programs are put in place. By blurring the boundaries of learning, exploration, and creation, individuals become active creators of their own knowledge and futures.

An additional insight was that there was a consistent barrier to realizing the potential of technology to revolutionize education and drive development: lack of the availability of appropriate machines. The insight that Negroponte had in Reaksmy, and that his collaborators at MIT built upon, was that successfully shifting the culture of learning for children in developing countries required coordination of a top-down effort to design, build, and deploy appropriate machines with a bottoms-up approach to ensure that the impact of these machines is maximized.

Negroponte took the stage at the World Economic Forum in Davos in January 2005 to present the idea for a "$100 Laptop" to be provided to primary school children in developing countries. One year later, in March 2006, One Laptop per Child emerged as a formal organization with the opening of offices in Cambridge, Massachusetts. The focus of OLPC's work was "to create educational opportunities for the world's poorest children" to enable them to "become connected to each other, to the world and to a brighter future." In other words, OLPC was based upon the recognition that education is a primary driver of social and economic development. The tool that we focused on to drive development was

THE ROLE OF THE TEACHER

An unintended consequence of emphasizing the role of the child in the classroom is that the role and importance of the teacher is either ignored or under-emphasized. At the outset we focused on the child but failed to involve teachers in a meaningful way. In reaction to this this early misstep, we set out to increase teacher engagement: today, discussions with deployments inevitably revolve around teacher training.

the provision to each child of a “rugged, low-cost, low-power, connected laptop with content and software designed for collaborate, self-empowered learning.” The organization would ensure that all children in developing countries had access to a “thing to think with” to drive their learning and ultimately empower them to participate in their societies and economies in a new and more active way.

LESSONS AND REFLECTIONS

It was not a given that OLPC would evolve as an organization in the manner in which it did: not only proving to the world the possibility of building a “children’s machine,” but eventually manufacturing what would become known as the XO computer. The next chapters explore the developments and choices that drove us to build the $100 laptop, the emergence of OLPC as a social enterprise, and the development of the Sugar learning software. We close with a few lessons that we think are applicable to all social entrepreneurs about our vision and approach:

• *Be bold in your vision*. To many, the bold statements made by OLPC were considered an audacious stance, and the general consensus was that we were quite likely wrong. But these lofty goals when publicly stated led to more media coverage than most organizations would ever dream of and, as a result, brought money, partner organizations, and individuals to the table to support our cause. Would these partners have joined us if our mission had been less bold? Quite likely not. They came to help with a project with a clear vision and lofty goals (and great media exposure, which was a boon to many of them). So while there was a downside to making bold statements—industry insiders wanted to see us fail—the upside turned out to be instrumental in our success. We believe bold ambitions and innovative ideas are critical in order to attract the working capital (cash, partnerships, and clients) for your project to succeed at scale, you will need to differentiate yourself and paint a bold vision of impact.

• *The goal is not just to innovate, but also to create value.* Bold ideas might have some residual impact on the market, but value is not realized until the product (or program) is directly in contact with the beneficiary. Be prepared to run the distance required to see your project through yourself, or ensure that you have a well-coordinated relay team of partner organizations who can help you bridge the gap between idea and its execution.

• *Gauge the distance between your vision and the status quo.* Look at the distance between the status quo and your vision for the future in order to gauge how far you will need to travel in gaining buy-in and support. Assess whether or not the general sense of what is possible meshes with your ideas of what is possible. Is your vision evolutionary, that is, an incremental improvement on current approaches, or revolutionary, in that it questions fundamental assumptions about possibilities and constraints? These factors will determine in large part the strategy you will need for garnering support for your ideas from funders and potential partners. Revolutionary ideas often impose a higher burden of proof; be prepared to go it alone in the early stages.