

Lifelong Kindergarten

Cultivating Creativity through Projects, Passion, Peers, and Play

Reviewed by Paul Pearson

In *Lifelong Kindergarten: Cultivating Creativity through Projects, Passion, Peers, and Play*, Mitchel Resnick makes the case for wide adoption of a project-based, collaborative learning model that undergirds his work with the MIT Media Lab's Scratch software online coding community for kids and a closely-related afterschool program he co-founded called Computer Clubhouse.

While lacking the nuts and bolts detail of a “how-to” manual, *Lifelong Kindergarten* presents an inspiring model for museums involved with, or contemplating initiation of, maker spaces or online programming communities in their own environment, or in partnership with external spaces or schools. The book also has value for museum educators and exhibition designers ready to challenge traditional interpretive programs and who are searching outside the field for insight and examples that may inform their efforts to attract, engage, and support participant audiences through deeper, more extended creative project-based experiences and resources within their own museums.

The book is organized into six, equal-weight chapters. An introductory chapter defines “Creative Learning,” then a chapter each on the “four P’s of creative learning”: Projects, Passion, Peers, and Play. Each of the first five chapters concludes with “In Their Own Voices,” a Q&A interview with a young alum or current member of the Scratch programming or Clubhouse communities. A concluding chapter summarizes the case for moving from an information or knowledge society to a “creative society” and includes lists of tips helpful to learners, designers and developers, teachers and caregivers interested in advancing toward that goal. The book is well-written in clear and common

prose and avoids or explains jargon for easy reading by a general audience.

Resnick proposes the development of creativity as essential to an individual’s ability to thrive within the accelerated pace of change that characterizes today’s world. He joins many contemporary observers in concluding that schools today are habituated to educational methods and standards that prioritize rote learning and rigid controls that no longer serve the needs of either students or society, if ever they did. Today’s regressive classroom environments may produce predictable performers as measured by standardized tests, but Resnick says they are failing to cultivate the kind of “Risk-takers. Doers. Makers of Things” that have been the “driving force for economic, technological, political and cultural change throughout history.”

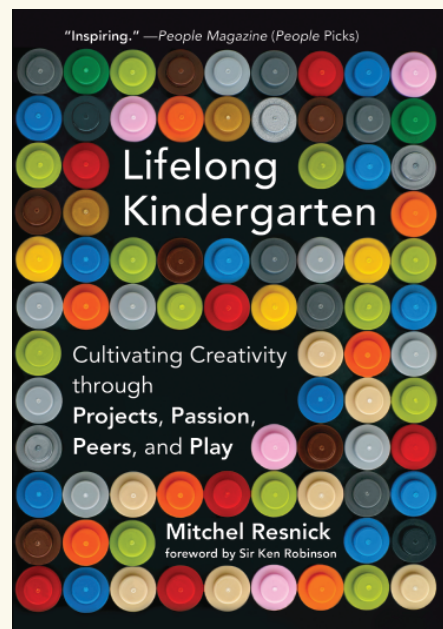
Resnick describes a creative learning curriculum that weaves together several strands of (widely studied and systematically abused) historic educational theories that inform his current practice. He traces backwards through the ideas of his mentor and colleague Seymour Papert, a mathematician and computer scientist who worked and studied with constructivist Jean Piaget, to American pragmatist philosopher and

educational reformer John Dewey, before landing at the feet of Friedrich Froebel, the early 19th-century German pedagogue considered to be the “Father of Kindergarten” (an approach which Resnick nominates as “the greatest invention of the previous thousand years”). Resnick’s heroes are united in a core belief that deep learning is best accomplished (at least by youth) through active engagement with the world (learning by doing), an idea that resonates with the very heart of contemporary educational practice in children’s and other museums that use interactive, open-ended learning experiences as their primary means of visitor engagement. Resnick echoes many complaints by teachers that our national obsessions with “testing, data collection, competition and punishment” are pushing joy and play out of classrooms entirely, even for a school’s youngest cohort. “Kindergarten is becoming like the rest of school,” Resnick argues. “I believe the rest of school (indeed, the rest of life) should become more like kindergarten.”

Understanding and facilitating collaborative creative processes and designing opportunities in museums that promote prolonged engagement with materials and ideas related to exhibition themes is a challenging goal for many exhibition design and program teams. In his first chapter, Resnick diagrams what he terms “the creative learning spiral,” an iterative cycle of actions that synthesizes constructivist ideas of how people learn and highlights the key components of a creative process we might infer from watching a group of kindergartners playing with building blocks or other basic materials: IMAGINE > CREATE > PLAY > SHARE > REFLECT > IMAGINE >..., etc. This learning cycle is repeated with new variations and inputs, until the group determines, upon reflection, that what it has built is satisfying or they decide to move on to another set of materials and challenges.

Lest we believe this example applies only to younger learners, Resnick and his colleagues see this process play out daily at the MIT Media Lab, where older students initiate and design new projects, build rapid prototypes, test them, discuss results, and redesign on the fly. Resnick observes that whether the materials

and tools are wooden blocks and bare hands or microprocessors and laser cutters, the fundamental elements of the creative learning process are the same. Designing experiences that support “low floors and high ceilings” is one of the mantras repeated in the book that is highly relevant to museum learning environments that often see participants of diverse ages and skills confronted with the same content and



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Published by the MIT Press,
Cambridge, Massachusetts,
paperback, 2017.

208 pages



materials, but experiencing and processing them from very different perspectives. A sympathetic experience developer might see this as a productive tension that, with the right prompts and conditions, can be used to enrich the individual and collective social learning experience and lead to breakthroughs in creativity and insight.

Program or exhibition designers involved with maker spaces or project-based resource areas in their facilities will find a wealth of strategies and examples in *Lifelong Kindergarten*. Throughout the book, Resnick examines the concept of experiential, interactive learning through examples found in the maker movement's highly social, project-based formats, as well as via toys and activities like LEGO® Mindstorms Robotics kits that support creative play and collaboration. It is not surprising that Resnick, as a trained computer scientist, draws most of his models and conclusions from his own experiences developing and facilitating the Scratch programming language and online network of users, including thousands of youth enrolled in Computer Clubhouse chapters. Resnick hopes to expand the use of new tools and technologies for learning and offers several principles and methods that educators might adapt for facilitating creative learning experiences.

In the chapter titled “Passion,” Resnick advances another cornerstone of the creativity package. This is the idea that learners with a passionate interest in their learning subjects are more motivated to think deeply, work harder, enlist support, and share process and results with others. Resnick adds texture to the argument by showing many examples of how students automatically apply previously acquired conceptual learning and acquire the new technical skills they need to accomplish complex tasks when engaged with projects of their own device. As a counterweight to those who feel traditional schools could not adapt to a curriculum centered on a student-generated projects model, Resnick points to Brightworks, a successful, mixed-age (5 to 15) day school in San Francisco, founded in 2011, that moves students

through three-month “arcs” of exploring topics deeply, expressing self-chosen aspects of that topic through extended projects and then presenting these projects and findings to the local community.

“Peers” focuses on how learning is magnified, broadened, and reinforced in social and community contexts. In this chapter, Resnick describes the example of Brazilian “samba schools” where members convene to create and practice music and dance routines in preparation for the nationwide annual carnival. Samba school participants are of all ages and levels of experience, from young novices to seasoned veterans and expert musicians. In samba schools, Resnick and his colleagues found inspiration for structuring and operating the mixed-age collaborative Computer Clubhouse and Scratch programming communities that encourage and support peer-to-peer learning, project sharing, feedback, and working in self-determined teams, either in-person or online. The examples and takeaways from this chapter might be particularly apt for museums looking for long-duration collaboration models with community partners, afterschool programs, scouting, or other clubs in their local area.

In chapter 5, Resnick asks: “What types of play are most likely to help young people develop as creative thinkers?” Resnick describes various forms and meanings of play and agrees with John Dewey that playfulness of mind is a critical condition of creative endeavor. In demonstrating that “not all play is created equal,” he contrasts *playpens* (restrictive, rule-bound, socially limited, safe) with *playgrounds* (expansive, exploratory, experimental, generative, risky) and asserts the playground model as an appropriate metaphor for the kind of learning environment that promotes the kind of free agency, experimental risk-taking, playful tinkering, and social networking necessary to the development of creative mentality and skills. For many museum professionals, the idea of converting a traditional gallery into a rule-free, open “playground” for tinkerers and

risk-takers might project a vision of mayhem. If we remember that “playfulness of mind” is the goal, then the playground metaphor is more tenable. Linking play with an attitude of inquiry prompts a question: Are today’s museums primarily concerned with preservation and communication of old knowledge frozen in time – or can they be forums for creative engagement with the past *and* present, where diverse audiences can contribute to the formation of fresh knowledge and new meanings?

The author discusses the tensions and tradeoffs that might come with the broad adoption of a model that seems antithetical to a current school mode, which seems designed for conformity and control of its inmates. Assessing learning outcomes for learners involved with creative projects is a problem for schools and museums. Resnick is skeptical that numerical data is the best way to measure an individual student’s learning progress or educational success as a whole. While admitting the difficulties of scaling nonnumerical assessment methods to huge cohorts of public-school students, he suggests student portfolios, and other qualitative methods, as more productive ways to both document and measure their learning. He concludes, “we need to rethink our approaches to assessment, making sure we focus on what’s most important for children to learn, not what is easiest for us to measure.”

In the final chapter, Resnick reiterates the central concept of *Lifelong Kindergarten* by describing an inspiring visit to a Reggio Emilia classroom, a model learning environment developed in Italy in 1945 and replicated in many countries. It is designed to support children’s exploration through daily active engagement with phenomenon and year-long projects with special attention to documenting their work as they go (through notebooks, posters and artwork, performances, photography, etc.) or what the Reggio model calls “making learning visible” and sharable with each other and the community at large. The final chapter closes with “Ten Tips for Designers and

Developers” that could easily slide into any must-read manual for interactive exhibition or program design.

A sampling: “Design for Designers” is about turning the goal of design process away from creating a finished product for others to marvel to building tools that assist others in finding pathways to their own creativity. “Widen the Walls” acknowledges that people have different interests, backgrounds, and learning styles and addresses the core question: “How can we design technologies that attract and engage them all?” “Connect with Both Interests and Ideas” advises that people are more apt to forge meaningful connections to new ideas that seem relevant to their own lives or that can be discovered while creating something of their own. “Prioritize Simplicity” uses a LEGO® model that emphasizes materials and parts that can be combined or manipulated toward many outcomes at low cost but with infinite creative potential. “Understand (Deeply) the People You’re Designing For” is both obvious and profound for exhibition developers and touches on necessary front-end audience research, while supporting the idea of integrating prototypes and formative evaluation. (“It’s not enough to ask people what they think or what they want,” offers Resnick; “you also need to watch what they do.”) Other tips center on interdisciplinary design team processes that testify to the advantage of opportunities for regular input and debate among coequals with diverse perspective and experience as well as opening up avenues of input into design to larger cohorts of potential users (“Control the Design, But Leverage the Crowd”). “Iterate, Iterate – Then Iterate Again” adopts tenets of the aforementioned “creative learning spiral” as an appropriate framework for effective design process.

Despite its important subject and insights, it is hard to classify this book and assess its value for potential readers here. In defining the problem, Resnick’s critique of our contemporary educational system will reverberate with the existing views of many in the museum field. The book’s research is journalistic and

informal. This is not an academic treatise or formal study, although it presents numerous individual interviews and provides vivid examples of the principles of creative play in action. The book's author draws many conclusions about the potential societal benefits of broad adoption of its learning model, without presenting objective data to demonstrate these implied impacts. While offering a clear rationale supporting the purpose and general structure wherein creative learning collaborations might be possible, this slim volume lacks the detail and linearity required in a nuts-and-bolts workbook or how-to manual for those interested in setting up a project-based school curriculum or afterschool program. For readers desiring more depth or granularity, the online resources of the main exemplars in this book will provide much more detail of methods, curriculums, and lesson plans. Resnick also provides a tidy bibliography of two dozen references for those seeking background and templates on the use of digital media, the Scratch coding, early childhood education, theory and practice of project-based learning, and the maker movement.

As I was reading *Lifelong Kindergarten*, I was hoping to discover more explicit utility and instruction for *Exhibition's* audience. I kept thinking about the quandary exhibition developers often find themselves working through when attempting to apply external experience models (whether found in classrooms, maker spaces, online or in other venues) to museum environments. Especially problematic are models designed for communities of peers who will be engaged with one another, and their facilitators, over extended periods of time (as in schools) and have the opportunities and structures that support building of trust, collaboration, and shared learning. When sorting experience models, or activities proposed for potential inclusion in an exhibition, one of the questions asked (as I'm sure you have asked yourself) is: is this a model for a facilitated program, or an exhibition experience? In other words, will this set of visitor activities integrate comfortably with,

or as, an exhibition, or is it a program model that requires conditions, facilitation, time and tools, as well as consistency of audience, that our exhibition and museum is unlikely to provide or attract?

Because Mitchel Resnick directly describes a wonderfully intricate program model, there are inherent difficulties translating it to an audience of exhibition developers and designers. It is not that *Lifelong Kindergarten* does not contain significant implications for the work of museums; indeed, I believe it does, but its content and teachings are more specific to the larger audience of educators and school administrators than to museum professionals. That being said, the guiding philosophy and inspirational spirit of the book is totally in line with the values and thinking in evidence at museums committed to experimentation with the kind of interactive, social learning environments that place audience at the center of their experiences.

Ultimately, the book settles into the categories of introduction and inspiration. *Lifelong Kindergarten* provides positive testimony and reinforcement for educators and experience developers who are contemplating, or already engaged in, establishing, and facilitating project-based creative learning experiences for children and teens.

Lifelong Kindergarten is not a cookbook for exhibition developers with detailed recipes for every occasion. It is more akin to a broader essay on the elements and philosophical principles that support a *way* of cooking that favors collaboration, experimentation and process over conformity and predictable results. A reader looking for a no-fail recipe will be as frustrated as a reader looking for insight and inspiration will be rewarded.

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