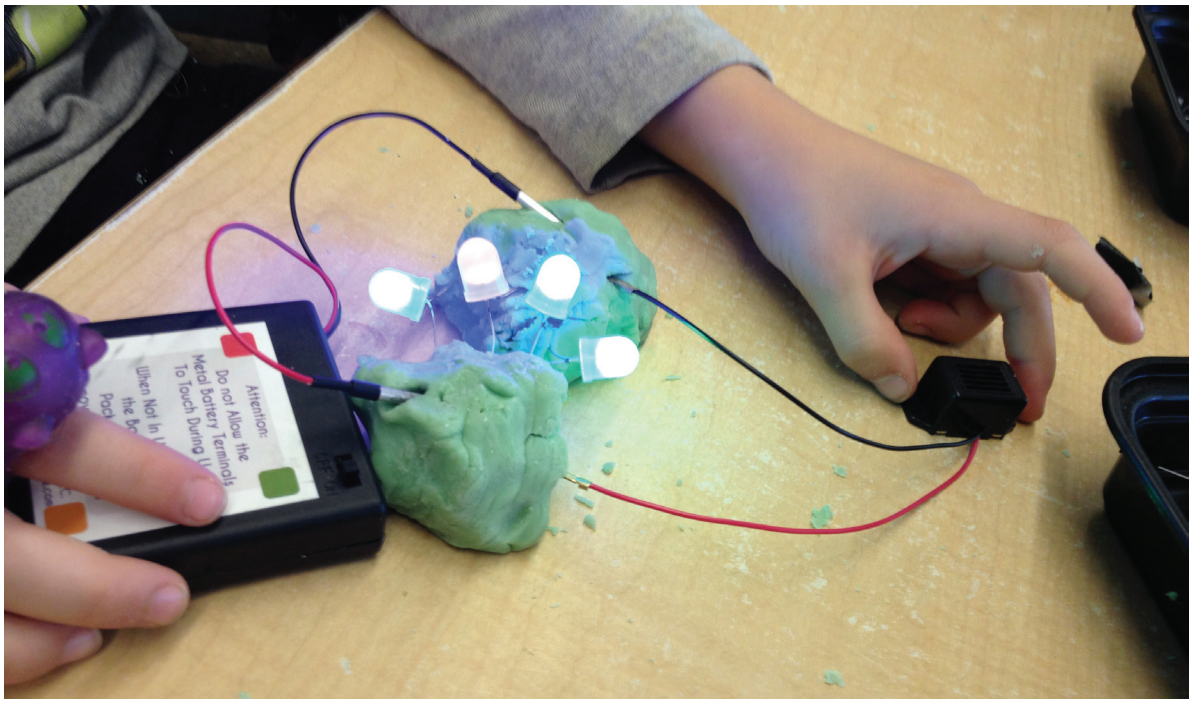
All rigor and no play is no way to improve learning

The Common Core's higher academic standards are forcing schools into a false dichotomy of reducing playtime in favor of more time to learn math and literacy. But play can deepen learning even in core content areas.

By Karen Wohlwend and Kylie Peppler



A preschooler's Squishy Circuit with a buzzer and four LEDs connecting two balls of Play-Doh. (Photo: Naomi Thompson)

Play is losing to rigor in American classrooms as more and more structured reading and math replaces traditional playtime, thanks in large part to pressure to meet the Common Core State Standards. Young children, in particular, are losing out because this increasing standardization of the curriculum restricts the variety of ways they could and should be learning.

At the heart of this zero-sum game are assumptions that rigorous content requires work, while play is frivolous. Thus, play in schools is increasingly detached from academic content, serving as a nice-but-not-necessary add-on that makes schoolwork more palatable or as a reward for good behavior or time on task (Murray & Ramstetter, 2013). In this climate, children must wait to engage in the learning that is most meaningful to them: play. Once school lets out, the luckiest few participate in interest-driven, after-school programs such as Makerspaces, museums, and library workshops (Peppler, 2014). Such programs often feature apps, virtual worlds, and video games with new technologies highly relevant to children's out-of-school lives and deeply connected to high-quality learning outcomes.

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We need to update early childhood curricula to better use intuitive new technologies. Early childhood professional organizations are calling for more expansive and responsive approaches that address the changing needs and potentials of learners. Increasingly, parents are opting out and early childhood educators are pushing back against standards-driven, high-stakes tests with their consequent stunted learning, arguing for engaging play-based curriculum that's rigorous, technologically relevant, and collaborative. We argue for a path forward that rejects familiar binaries of work vs. play and old vs. new technologies and that follows the children's lead by asking:

- What are children able to do when we expand learning to include dolls and books, digital cameras as well as paper and pencils, and Play-Doh® as well as science experiments?
- What happens when we dismiss the supposed oppositional relationship between imaginative play and rigorous standards?
- Is it possible to rethink our ideas about play and rigor to design and facilitate expanded learning, where play, collaboration, and arts are on equal footing with science and technology?

Playshops

Playshops are a curricular model we developed to encourage playful and collaborative learning as well as the rigorous learning that the Common Core standards hope to inspire. Each playshop features different combinations of literacy, arts, sciences, or technology. For example, one literacy playshop supports children as they use digital cameras to create live-action videos of their own versions of their favorite media characters such as Disney princesses or Transformers. Another example, a design playshop, lets children learn electronics concepts by decorating and crafting a Play-Doh circuit that will actually light colorful light-emitting diodes (LEDs). Future playshops will allow children to animate toys as avatars in games they design. At their core, playshops build on the strengths of young children and their

Playshops bring together childhood strengths with school curricula in play, collaboration, new technologies, and a content area such as literature, arts, and sciences.

A Squishy Circuits Design Playshop: Preschoolers collaborating on technology as they align the leads of an LED to construct an electrical circuit with Play-Doh. (Photo: Anna Keune)

We argue for a path forward that rejects the familiar binaries of work vs. play and old vs. new technologies and follow the children's lead and let them play and learn.

teachers: children's expertise in collaborative dramatic play capitalizes on their everyday knowledge and early childhood teachers' expertise in providing play-based learning. We avoid positioning arts, play, or craft making in the service of literacy, math, or science. Rather, they interact and deepen one another.

While most makerspaces are in out-of-school settings, we work with teachers to bring playshops to school, making room in the curriculum by integrating play and technology with other subjects. Karen Wohlwend began partnering with kindergarten teachers in 2005 to develop and implement literacy playshops on filmmaking and children's media. Since then, we have facilitated playshops in preschool through primary grades. Each playshop is unique, situated in a single classroom, and designed by teachers to best fit the interests and curricular needs of children in that classroom. Our studies on these playshops show that playshops support deeper learning for more children. In one study, a reluctant 1st-grade writer who would only write a few words on a page of paper narrated elaborate scripts with 15 minutes of uninterrupted dramatic dialogue when making films on the same topic (e.g., "The people of earth will bow down to me. And then they will do my bidding") (Wohlwend & Buchholz, 2014, p. 39).

Puppet Movie Literacy Playshop: K-1 students filming a puppet show performance. (Photo: Linda Coggin)

Other studies showed that filmmaking playshops enable kindergartners and 1st graders to coordinate roles of director, author, actor, and cameraperson and to improvise as they pooled their ideas in ways that made the emerging storyline more complex and innovative (Wohlwend, 2011). In a recent study of the Design Playshop with Squishy Circuits, children who played or crafted — turning their electric circuit projects into toy snakes or glowing necklaces — stayed longer than children who simply solved the circuit challenge. Play and design deepened learning when longer stays let children explore and debug more advanced scientific concepts about current flow and polarity (Wohlwend, Peppler, & Keune, under review). While these classroom studies are small, they resonate with an established research base with large-scale longitudinal studies on the positive lifelong effects of play-based yet rigorous curricula in early childhood, including the landmark Perry Preschool Project (Schweinhart, et al., 2005).

The playshop model brings together childhood strengths with school curricula in four quadrants: play, collaboration, new technologies, and a content area in literature, arts, or science (i.e., the stuff of the Common Core). In Design Playshops, for example, we use e-textile materials to merge play, crafting, collaboration, and circuitry electronics. In this way, the model can be extended to a variety of classroom activities. In Literacy Playshops, children enact elaborate stories as they make animation, puppetry, or live-action digital video. For example, filmmaking with popular media toys and digital cameras is a particularly powerful form of storytelling that invites invention and collaboration among players. Wohlwend and colleagues found that young children in a combined kindergarten/1st-grade literacy playshop achieved academic goals consistent with the Common Core standards for literacy and also tapped into their individual literacy proficiencies that were grounded in their popular media interests (Wohlwend et al., 2013).

This model was then extended in Design Playshops where children played together as they solved arts and technology challenges. In one project for preschool classrooms, for example, we created a Design Playshop with Squishy Circuits, an electronics kit for creating circuits with Play-Doh wires. The electronics challenge is to produce a working circuit using conductivity of the salt dough to allow current to travel through the Play-Doh "wires," lighting LEDs, spinning motors, and merging crafting with electronics concepts of connectivity and polarity usually considered too advanced for young children. We found that play mediated rigorous content and sustained learner engagement in a playshop where children made "electric snakes" and other crafts from Play-Doh while fashioning working electronic circuits from Play-Doh and LEDs.

At their core, all playshops expand learning through disciplinary mergers in two ways. First, playshops expand disciplines, such as literacy, to include printless storying, crafting, and other forms of design; this expands the scope of meaning-making practices beyond narrative storytelling in drama and literature disciplines to recognize emerging arts and design. Second, playshops expand paper/print tools to rapidly changing and increasingly intuitive technologies in fields such as digital media production, coding, and electronics in computer science and engineering.

Benefits to learning

Play is a way of deepening learning in many of the core content areas that we care so much about in today's schools. What follows are key examples of how the playshop model deepens learning across each of the aforementioned quadrants.

Technologies and minds-on STEM learning

Deep engagement with rigorous scientific concepts depends not only on hands-on making and active experimentation but also on "minds-on" experiences (NRC, 2012). For example, preschoolers who engage in sustained hands-on circuit making grasped the science concepts of the exercise better (Glauert, 2005). In the Squishy Circuits Design Playshop, we found that children demonstrated their hypotheses and their practical understandings of complex circuitry concepts by interconnecting circuits by attending to the necessary components of a circuit, aligning and attuning to the polarity of the battery leads, LEDs, and other components of the circuit, demonstrating an understanding of current flow by making a range of loops within the circuit, and debugging problematic circuits to test the battery (Peppler & Glosson, 2013).

Inventive learning

Play complements the daily demonstrations and scaffolded participation that teachers and parents provide by creating a pretend space to sort through and explore materials and invent new meanings. Through pretend play, children quickly replace conventional meanings with make-believe ones (Vygotsky, 1978). In the Squishy Circuits Design Playshop, for example, we found that play sustained children's engagement. Preschoolers who played with Play-Doh circuits stayed longer and experimented more than children who simply solved the challenge of creating a working electronic circuit (Wohlwend, Peppler & Keune, under review).

Design and creative learning

Through design, children create artifacts and texts, making aesthetic choices and exploring the sensory meanings of materials. Over time, children "involved in interest-driven arts production expand beyond technical and critical considerations toward creative or artistic ends . . . [and] learn about and appreciate artistic principles by making artistic choices within a single modality (e.g., visual, audio, or kinesthetic), as well as by connecting multimodal sign systems across two or more modalities (e.g., visual and sound) to convey an artistic idea" (Peppler, 2013, p. 20). In the Squishy Circuits Design Playshop, children made their projects more complex and created innovative artifacts by making artistic choices — choosing objects, size, color, form, texture to represent meanings; combining one or more modes such as image, sound, movement, or texture; developing skill in using tools and manipulating material; or re-envisioning materials by manipulating or transforming elements — e.g., changing form from pancake to snake.

iPad Animation Literacy Playshop: Three 1st-grade boys collaborate on a touchscreen to animate characters in Toontastic, an iPad app for digital animation. (Photo: Karen Wohlwend)

Collaborative learning

Through collaboration, children share knowledge and ideas and support one another as they engage in complex activity or coordinate next steps on joint projects. By opening opportunities for collaboration, children can see problems from another's perspective and expand their opportunities to teach and learn (Ramani & Brownell, 2014). Collaboration sustains young children's engagement during challenging projects. The "collaborative nature of an activity itself can cause preschoolers to enjoy challenging tasks more and to persist longer on them" (Butler & Walton, 2013, p. 953). Examples of collaborative practices include copying, showing others, offering materials to another child, and commenting on another's actions. In the Squishy Circuits Design Playshop, we looked beyond individual children's discoveries and artifacts to track the collective flow of knowledge produced and circulated around the table as children played together and helped one another on shared projects.

Inviting and sustaining diverse participation

Perhaps our most important finding was that the Design Playshop model not only deepened learning but also broadened participation by keeping it messy — expanding the ways that children could participate by providing multiple entry points and possible pathways through the activity. Some children began by pretending and squashing pretend pancakes, others by mixing Play-Doh colors to pro-

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duce new colors or by linking electronic components and lighting LEDs, and still others by demonstrating their discoveries and sharing their materials with friends. This Design Playshop enabled children to engage deeply across all quadrants — play, circuitry, crafting, and collaboration — opening multiple approaches for a range of young children, boys and girls, ages 3 to 5.

Play as a childhood "basic"

The Common Core goal of college- and career-ready would be better served by engaging and challenging young learners through play, design, collaboration, and new technologies. Children need traditional basics and the ability to go beyond the facts — to synthesize, integrate, create, and evaluate. In other words, they need the kind of advanced skills that the Common Core standards envision. Children also must be able to collaborate and lead effectively to achieve significant innovation and change (Hirsh-Pasek et al., 2008).

Contrary to the play/rigor binary, play-based curriculum is not simplified, frivolous, or detached from disciplinary content. Children engage complex problems through play and exploration (Duckworth, 1996), making them accessible by applying what they know and by pooling their knowledge as they pretend their way into learning (Wohlwend, 2011).

Playshops expand learning by integrating play, collaboration, design, and technology in ways that multiply entry points for students (Wohlwend et al., under review). Crucially, play opens access to rigorous learning by letting children connect new knowledge to their personal expertise and cultural experiences and makes learning more accessible to a broader range of learners (Brooker & Woodhead, 2013). The need to broaden access to core learning is acute; the 2012 U.S. census shows that the most diverse segment of the U.S. population is 5 years old and younger, with children of color making up 49.9% of this age group. Clearly, we are out of time. We must act now to provide all young children with playful learning, not as a nice enriching activity on the fringes of the school day but as a core basic for more engaged and rigorous learning that gives diverse children equitable opportunities to learn. ◂

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