# Toward an American Pedagogy of Play

A Pedagogy of Play working paper[1,2]

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With the goal of supporting educators in bringing more playful learning into their classrooms and schools, the Pedagogy of Play USA project conducted research in six schools in the Boston area in the Northeastern United States (U.S.). Considering the specific challenges and affordances of the local educational context, we examined what playful learning looks and feels like. Based on our research, we found that playful learning in the classrooms we studied is *empowering*, *meaningful,* and *joyful*. We begin this working paper with an example from a 2nd grade math lesson, one of three examples we share throughout the paper that illustrate what playful learning can look and feel like. Then, we explain the importance of understanding what playful learning involves in U.S. schools, describe the qualitative research methods employed in this work, and introduce the Indicators of Playful Learning: Six United States Schools, a model of what learning through play looks and feels like in the six schools in this study. We conclude with a discussion of the relevance of the indicators model to other U.S. schools. In Appendix A, we share examples of online playful learning in 1st and 5th math instruction.[3]

## Second graders creating math games



*Ella and Kim collaborate to create a math game*

Ella and Kim sit side by side in their 2nd grade classroom (generally 7-year and 8-year-old students) at the Cambridgeport School, a public elementary school in Cambridge, Massachusetts. Their teacher, Suzie Krupienski, has explained that they and their classmates will continue work in small groups to create math games that will be shared

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[2] Pedagogy of Play is a research collaboration between the LEGO Foundation and Project Zero, a research organization at the Harvard Graduate School of Education. The project began in 2015 at International School of Billund, Denmark, and expanded to research sites in South Africa, the United States, and Colombia. At each site, educators and researchers work together to explore culturally relevant models of playful learning. For more information, please visit http://www.pz.harvard.edu/projects/pedagogy-of-play.

[3] We use pseudonyms to refer to students in examples throughout the paper.

with younger students in the school. Suzie emphasizes that this is a team endeavor; the games should include ideas from each group member.

Kim and Ella review a graphic organizer provided by Suzie about creating math games. Their task includes choosing a name for their game, deciding on the number of players, determining materials needed, creating the game's rules, and importantly, being clear about what math concepts the game will help players practice.

The girls have decided their game will help players practice place value, in particular adding and subtracting ones, tens, and hundreds. They have a pair of dice and have begun sketching out ideas for their game board on a piece of paper. Talking and pointing, they share and build off each other's ideas:

Ella (showing Kim a side of a die): I like this one. This one should be (pointing). Look.
Kim: Oh yeah, this one should be plus. Plus 100!
Ella (with a broad smile): "Mmm!"
Kim (pointing to the paper): And this one should be a lollipop!

They both laugh with appreciation about this idea to make the game more interesting to their younger audience.

Around the room, small groups of children, some sitting at tables, others sprawled across a rug, are engaged in creating math games. There is a buzz of activity. One group is working on a baseball-themed game involving dice and probability. A second group's counting game involves mazes and the risk of falling into lava. A third group is using coins. Children seem very comfortable in the space. There is a cozy feeling in the classroom as they discuss and debate, talking and drawing out ideas, and occasionally getting up to ask Suzie a question, consult with peers, or procure materials.

Suzie comes over and sits with Ella and Kim. The girls are eager to share their ideas with her. They explain their game is about plus and minus ones, tens, and hundreds. Suzie validates that this is a good focus; it is appropriate for first graders and connects with math standards for her second graders; of the four critical areas named in the Massachusetts state math standards for 2nd grade, "extending understanding of base-ten notation" is listed first (Massachusetts Department of Elementary and Secondary Education, 2017, p.33).



*Ella and Kim sharing their draft game with Suzie*

Suzie asks the girls to tell her more about their game. Kim explains their ideas for the board game. When Suzie asks clarifying questions, it becomes apparent that Ella and Kim have not sorted out all the details of their game. She encourages them to write down their rules to help them think things through and then leaves to help other groups. Challenged to produce a satisfying game, Ella and Kim continue to discuss their rules.

Ella and Kim haven't completed their game when it is time to clean up and transition to the next activity. Work on the games will continue for several days with groups getting feedback, revising, and ultimately sharing their games with younger students at the school.

This example illustrates what playful learning can look like. It entails the joy of working with classmates and discussing math concepts, of having ideas and negotiating with peers. It involves a buzz of activity and a well-defined focus, as well as a distinct structure (e.g., the game making template Suzie provided students) and lots of choice.

## The importance of understanding what playful learning looks and feels like in the U.S.

Having a clear grasp of the phenomenon of playful learning allows educators to plan for, implement, and assess efforts to bring more learning through play into their schools. In this section we explain the importance of understanding what playful learning looks and feels like in the U.S. We discuss the relationship between playful experiences and learning, and the impact of the current educational climate in the U.S. on playful learning. We present the idea of paradoxes between play and school, which complicate efforts to bring more playful learning into schools and increase the need for clarity about what playful learning involves. We argue for the right of all children to learn through play, as well as the need for culturally relevant definitions of playful learning.

Play is a central way people learn. When people play, they are engaged, relaxed, and challenged—states of mind that are highly conducive to learning. Through play people test theories about how the world works, experiment with language, explore social relations, take risks, and reimagine the world. They develop agency, empathy, imagination, and learn to deal with uncertainty (e.g., Bateson & Martin, 2013; Cooper, 2009; Dewey, 1944; Flewitt et al., 2017; Frost et al., 2012; Gauntlett et al., 2013; Hale & Bocknek, 2015; Hirsh-Pasek et al., 2009; Honeyford & Boyd, 2015; Nicolopoulou, et al., 2010; Plenty, 2014; Sullivan, 2011; Vygotsky, 1978; Weiland & Yoshikawa, 2013). Based on research in learning theory, developmental theory, and neuroscience, the LEGO Foundation has proposed five characteristics of playful experiences that explain the relationship between play and learning (Zosh et al., 2017). According to this characterization, playful learning is joyful, meaningful, actively engaging, iterative, and socially interactive. Making activities enjoyable and rewarding, engaging and personally important, physically and mentally active, iterative, and social, supports children's motivation to learn and connect to their prior knowledge,

experience, and interests. In play children's attention is focused. They persist through challenges. They make connections. With brain networks activated, they engage in deep learning, consolidate skills, and retain what they have learned (Liu et al., 2017).

Given the relationship between play and learning, it stands to reason that play should have an important place in schools (Parker & Thomsen, 2019). Indeed, questions about if and how to incorporate playful learning into schools are of interest to many educators and researchers. In a review of the literature conducted by our team, we found that in the past two decades, there has been an increased interest in playful learning in formal learning settings across grade levels in the U.S., and in early childhood in particular. The number of articles focused on playful learning in formal U.S. educational settings has more than doubled from the first to the second decade of the century.

Despite this interest and the documented benefits of playful learning, it can be challenging to incorporate it into U.S. schools. Educators interested in playful learning as part of their practice often face an uphill battle as they sift through seemingly opposing paths for fostering student learning: on the one hand focusing on academic standards, and, on the other, making room for playful learning. Fisher et al. (2011) suggest that play and academics are often viewed as polar extremes that cannot be blended. Play can be seen as frivolous or not connected to learning. The Pedagogy of Play project has named some of the apparent paradoxes that arise between the nature of play and the nature of schools (see Table 1). Players tend to lose themselves in play, schools have timetables; play can be messy, loud, and chaotic, schools aim to be places of order; play involves risks, in school children should be kept safe; children direct their play, adults set the goals and standards in schools. These paradoxes make it seem as if play and learning are in tension with each other (Kuschner, 2012).

Table 1. Paradoxes between play and school

| Play | School |
|---|---|
| Play is timeless. | School is timetabled. |
| Play can be chaotic, messy, and loud. | Schools are places of order. |
| Play involves risks. | In school, children should be safe. |
| In play, children are in charge. | At school, the agenda is generally set by adults. |

Education reform in the U.S. has further complicated the role of playful learning in formal education. With the pressures of achievement and accountability, a culture of playful learning is not available in many, if not most, schools in the U.S. (Baron, 2014; Cooper, 2005; Gewertz, 2010; Graue, 2009; Huff Sisson & Kroeger, 2017; Lynch, 2015; Nicholson et al., 2016; Scully & Roberts, 2002; Wohlwend, 2009). A legacy of federal education reform in the U.S.—starting

with No Child Left Behind (NCLB), followed by Race to the Top, and the Common Core State Standards[4]—has confronted educators with fundamental questions about what is worth learning, teaching, and assessing in schools. NCLB is described in the literature as posing a threat to children's play in schools. We observed a shift in the literature from earlier papers focusing on how teachers gain assessment information from play to utilize in their lessons and classrooms in the 90s (e.g., Farmer-Doughan & Kaszuba, 1999) to academic skills assessments and standards squeezing play out of the early childhood classroom in the early 2000s (Graue, 2009). Not only did NCLB affect the amount of time that students are given in free play and recess, it has also affected the learning process (Miller & Almon, 2009). For instance, teaching and learning in early grades is increasingly focused on literacy and math skills and facilitated through direct instruction. This is in contrast to self-directed learning experiences that foster children's socioemotional and critical thinking skills and are supported by responsive teaching (Graue, 2009).

The movement towards standards and greater accountability, often through high stakes testing, has frequently sidelined play and playfulness. In many cases, the pressure surrounding accountability results and standardized testing cultivates classrooms where there is only enough time to teach specific academic skills and content (e.g., Nicholson et al., 2016). This has added to the confusion about the role that playful learning can have in learning and development, beginning in early childhood but permeating the entire education system. With all that must be covered and achieved in the school day and academic year, what time and space is there in the curriculum for learning through play? Studies report that between meeting standards and preparing students for high stakes tests, many teachers feel they do not have the time to include play, even if they know it is important to children's development and learning (Baron, 2014; Cooper, 2005; Gewertz, 2010; Graue, 2009; Wohlwend, 2009).

In the current U.S. educational climate, there is a need to rethink the relationship and apparent tensions between learning and play, and to support educators in nurturing school cultures that foster playful learning. For schools to become places of playful learning, not just in early childhood or at recess, but throughout the school day in primary, middle, and high school, policies and practices that promote playful learning need to change to allow for experimentation of playful approaches. There are some clear areas in research and practice that need to be addressed for playful learning to become more widely accepted and utilized in education in the U.S. First and foremost, this research must address the tug-of-war between play on one side and academics on the other (Baron, 2014; Wohlwend, 2009). Rentzou et al. (2019) state that play "constantly has to prove its place, status and role not only in children's lives but also in [Early Childhood Education and Care] ECEC programs" (p. 1).

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[4] The No Child Left Behind (NCLB) Act, in effect in the U.S. from 2002-2015, was designed to hold all public schools accountable for all students' achievement. It measured progress towards this goal through high stakes standardized testing administered to students yearly in 3rd through 8th grades and once between 10th and 12th grade. Individual states were responsible for developing tests and standards for its schools, and schools were penalized for not meeting set standards. Race to the Top was a national competitive grant for states introduced in 2009. Its goals were to incentivize school reform by developing or bettering standards, assessments, and data systems to support student progress, and by increasing the effectiveness of teachers and support and interventions for the lowest performing schools. Created by the National Governors Association, Common Core State Standards are national math and English language arts standards in the U.S. that identify learning benchmarks students should meet by the end of each grade in kindergarten through 12th grade. Although all states maintain statewide standards, they have the option to opt in or out of the Common Core State Standards.

Play's role in academics is not just an early childhood issue. More research in the upper elementary and middle school years is needed to both understand what characterizes and impedes playful learning experiences (Klopfer et al., 2005). Across grade levels and subjects, additional research illuminating what playful learning looks like would contribute to a more widespread understanding of how playful learning might be incorporated into the school day for all learners. We agree with Souto-Manning (2017) when she argues:

> Play must be the right of every child. Not a privilege. After all, when regarded as a privilege, it is granted to some and denied to others, creating further inequities…[Play] is currently being denied in the name of rigor and academic, both of which have been used as racist ways of keeping the status quo in place (p.785).

Like Souto-Manning, we have large ambitions for learners to have access to meaningful playful learning experiences. We believe culturally relevant approaches to playful learning provide opportunities for children to become confident, self-directed learners who can participate in a democratic society and engage in the 21st century economy. By shifting attitudes, understanding the nature of learning, and exploring and co-creating playful practices, educators and school leaders can foster cultures of playful learning—as part of school structures, curricula, and pedagogy. In order to support understandings that promote playful learning, educators need culturally relevant models of what learning through play involves.

Our previous research has yielded models of what playful learning looks and feels like ("Indicators of Playful Learning") for the International School of Billund in Denmark (Mardell et al., 2016) and three schools in South Africa (Solis et al., 2019). We believe the ideas developed in this prior work have relevance to teaching and learning in other regions of the world. At the same time, while play is universal, it is also a cultural construct (Hale & Bocknek, 2015; Jung, 2015; Roopnarine et al., 2015;). Who children play with, how they play, where and when they play, and when they should stop playing (if ever) are determined by cultural contexts (Bultosky-Shearer et al., 2012; Whitebread & Basilio, 2013). Cultural values, ethnic and linguistic diversity, school resources and social issues, and the very way play is conceptualized affects how teachers implement it in their classrooms and how school leaders foster it in their schools (Bryan & Jett, 2017; Cortez-Castro, 2015; Higgs, 2010, 2012; Rentzou et al., 2010; Roopnarine et al., 2015; Solis et al., 2019).

How children learn through play and what shapes this playful learning are questions that can be better understood by examining everyday learning interactions in classrooms and schools. In addition, it is imperative that researchers critically analyze existing research and practice and consider how local factors inform teachers' and school leaders' understanding and implementation of playful learning approaches. Hence the need for illuminating playful learning approaches that take place in specific U.S. school contexts, with the aim of encouraging U.S. educators to imagine what playful learning might look and feel like in their own settings. We now turn to our research methods to explain how we explored the question of what playful learning entails—what it looks and feels like—in six U.S. schools.

# Research methods

Six schools in the greater Boston area in Massachusetts, USA participated in the project. The schools included a range of grade levels (from pre-kindergarten/junior-kindergarten to 12th grade[5]), exhibited a healthy and predictable school culture as indicated by district administrators and research colleagues, had school leadership that was supportive of innovative approaches to learning, and indicated an interest in incorporating playful learning into their teaching practices. The schools differed in terms of resources and racial, linguistic, and socioeconomic backgrounds of the students (see Table 2). Three of the schools were public district schools, one was a public charter[6] school, and two were independent schools.[7] A detailed description of each school can be found in Appendix B. The schools were selected using a purposive sampling approach (Miles et al., 2014) and not chosen in the attempt to find representative schools regarding pedagogical practices. Rather, they were selected because existing practices offered opportunities to observe learning through play in a range of classroom settings.

Table 2. Participating School Demographics

| School | Type | Student Population | Grade Levels | % Economically Disadvantaged | % Students of Color |
|---|---|---|---|---|---|
| Cambridgeport School | District | 325 | Jr.K-5 | 21.5% | 44.1% |
| Eliot School | District | 722 | K1-8 | 17.6 % | 38.7% |
| Josiah Quincy Elementary | District | 795 | K0-5 | 50.7% | 88.8% |
| Codman Academy | Charter | 345 | K1-12 | 61.7% | 99% |
| The Advent School | Independent | 200 | Pre-K-6 | Not Reported | 34% |
| Atrium School | Independent | 125 | Pre-K-8 | Not Reported | 25% |

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[5] This grade range represents students who are 3 or 4 years old to 17 or 18 years old. Different schools and districts use different labels (i.e., pre-kindergarten, junior kindergarten, kindergarten, kindergarten 0, kindergarten 1, kindergarten 2) to identify early childhood grade levels for children 5 years old and younger.

[6] A charter school is a school that receives government funding but operates independently of the local public school system in which it is located. Charter school laws vary from state to state, and some states have no charter schools at all.

[7] For reference, in the 2019-2020 academic year, 69% of students in Boston were enrolled in Boston Public Schools, 14% were enrolled in charter schools, and 11% were enrolled in private or parochial schools (Boston Public Schools Communications Office, 2019).

A total of 22 kindergarten through 9th grade teachers,[8] including four pairs of co-teachers, participated in the research. They were identified based on their use of promising playful practices, openness to reflecting on their teaching, and interest in participating in the project. The head of each school (6 total) and one assistant principal at one of the schools participated in the research.

<u>Procedures</u>

Data collection began in October 2019 and continued through the remainder of the academic year. We conducted observations in classrooms, interviews with teachers, a focus group with students, and interviews with school leaders. Data collection and interactions with schools and educators were adapted in March 2020 to respond to schools' transition to remote learning during the global outbreak of COVID-19.

*Observations.* A team of researchers conducted 88 observations to document evidence of playful learning in 17 classrooms participating in the study (between 2-7 observations per classroom).[9] Teachers at four of the six schools completed all three phases of observations as described below; observations at two of the schools were suspended prior to completing the three phases of observations due to the COVID-19 school closures.

Initial observations focused on documenting the overall setting (e.g., physical materials and resources) and the flow of learning activities in the classroom (e.g., school day schedule, curricular content). Subsequent observations focused on the teachers' pedagogical practice and instructional moves and on individual student's learning experiences (two learners per classroom). Focus students were selected in conjunction with teachers as "typical learners" (with neither outstanding abilities nor learning limitations), who would be willing to talk to the researchers about their learning experiences.

During observations, researchers looked for times in the classroom when playful learning seemed to be occurring. They focused on instances in which learning activities and interactions responded to learners' agency, interest, and/or positive affect, aspects identified from the team's own experiences in the U.S. educational system, prior Pedagogy of Play research, and relevant academic literature. During these observations, the researchers engaged in informal conversations with teachers and learners about the lessons (e.g., How did the lesson go? What did you like or not like about the lesson? How did the lesson make you feel?). While teachers knew of our interest in learning through play, we did not ask them to change their teaching in any way. In fact, we made it clear that we hoped they would do what they normally did during the observation.

Observations were summarized in memos that detailed classroom activities and interactions between and among teachers and students, as well as reflections on how observations helped illustrate moments of playful learning. Memos included photos and videos that helped illustrate moments of playful learning.

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[8] Participating teachers included: 7 teachers in early childhood, grades pre-kindergarten/junior kindergarten through kindergarten; 4 teachers in early elementary, 1st-2nd grades; 6 teachers in older elementary, 3rd-5th grades; 4 teachers in middle through early high school, 6th-9th grades, and 1 teacher in an elementary art class.
[9] Due to difficulty acquiring student permission forms, one teacher did not participate in classroom observations, but did participate in interviews.

*Teacher interviews.* Researchers conducted a total of 40 interviews with 22 teachers. Three semi-structured interviews explored teachers' beliefs, attitudes, and practices related to playful learning, although not all teachers completed all three interviews given changing availability due to the COVID-19 pandemic. In the first interview, teachers were asked about their background, school context, educational goals, initial thoughts about playful learning and its role in learning experience, and playful moments for them as a teacher. The second interview revisited several questions from the first interview and probed teachers' thoughts regarding playful learning. Teachers were asked about the terms and phrases that they use to describe playful learning practices and to nominate playful moments from their perspective. Photos or videos captured during observations were selected by researchers and shared with teachers to elicit their reflections on specific playful learning moments. The second interview ended with the teachers imagining and describing an ideal playful learning experience. The third interview asked teachers to respond to a draft of the indicators of playful learning developed from the earlier interviews and observations and to indicate how well this model reflected their ideas about and experiences of learning through play. Teachers were also asked to suggest additional terms and concepts they would add to the model. This third interview was conducted remotely with teachers, using a secure online meeting platform to adapt to COVID-19 social distancing precautions. One teacher responded to this third interview by email.

*Focus group.* In a focus group, conducted remotely using an online meeting platform during March 2020, learners from a 7th grade classroom at the Atrium School were asked to draw and reflect on a playful moment (i.e., one in which they felt curious and excited) they had previously experienced in class, as well as to imagine their ideal learning moment. Both the drawing task and the group discussion were intended to elicit learners' descriptions of playful learning experiences—what they might look and feel like. No other focus groups were scheduled given the precarious situation schools and educators found themselves in at the start of the COVID-19 pandemic, when focus groups were scheduled to take place.

*School leader interviews*. We conducted a total of 12 school leader interviews, with most administrators participating in two interviews during the research. The first interview, conducted with school leaders at all six schools, asked them to describe their school context, educational priorities, and beliefs about learning through play. The second, conducted remotely with school leaders at five schools, asked them to respond to a draft of the indicators of playful learning and how well the model represented playful learning in their school.

Analyses

We employed open coding to identify terms and themes related to playful learning that emerged in observation memos, interviews, and the focus group. Three researchers (authors Mardell, Solis, and Ertel) independently read memos, looked through photos, videos, and artifacts, listened to interviews and/or read interview summaries, and discussed insights and themes that emerged in the data. In collaboration with the rest of the research team, emergent themes were summarized into categories and developed into a model of indicators of playful learning. Analyses utilized data triangulation looking across data sources and the emerging model was revised based on interviews with teachers and school leaders.

Although we believe our findings represent the practices we observed in classrooms and the ideas expressed by educators and students, we want to acknowledge that the views of our

primary analytical team (authors Mardell, Solis, and Ertel) are shaped and limited by our experiences, perspectives, and values as educational researchers at Project Zero, a research center at a select private university in the Northeastern U.S. In our analyses we were careful to stay as close as possible to the experiences in classrooms and the language of teachers and students and to invite the perspectives of the rest of our research team as well as participating teachers. Yet our conception of playful learning is informed by our prior research and experience developing indicators of playful learning at two additional research sites (i.e., the International School of Billund in Denmark and three schools in the Johannesburg/Pretoria area of South Africa), and grounded in a social-constructivist perspective of human development and learning. We invite educators to interpret and adapt the examples and discussion of educational practices presented here in light of their own and their students' sociocultural contexts and experiences. As a culturally shaped human endeavor, playful learning across different schools in the United States (not to mention in other countries) will likely have some similarities and some differences, and we hope that what we present here inspires reflection and exploration of the shape it can take in local contexts.

## Exploring perspective taking and environmental protection through stories in 1st grade

A group of first graders (generally 6- and 7-year-olds) at The Josiah Quincy Elementary School have been asked to brainstorm arguments against cutting down the fictional truffula trees found in Dr. Seuss's classic text *The Lorax*. With a focus on building academic vocabulary and familiarity with English grammar, teacher Amanda Alexis spends 60 minutes a day with this group of English Language Learners. For the past week the children have been studying *The Lorax*, a fable about the dangers of human degradation of the environment. In the book, a character named the Onceler is bent on cutting down all the truffula trees.

For today, Amanda has crafted a lesson for students to work on point of view in their writing. To meet their learning goal, Amanda invites the children to write a letter to the Onceler from a truffula's perspective to convince him not to cut them down. Since it is the first time they are writing this kind of letter, Amanda explains that she has written the thesis sentence to help them get started: "Dear Onceler, you should not cut down any more truffula trees…"

Amanda has a surprise to help the children imagine and take the perspective of a tree. She asks them to close their eyes and hands out colored t-shirts—the colors of the truffula trees. "Don't open your eyes until I say," Amanda tells them. Only when every student has a t-shirt in hand, are they invited to open their eyes. "We need to turn ourselves into truffula trees. Yes, even me," Amanda explains, as she unzips her sweatshirt and reveals that she too is wearing a bright pink t-shirt. The students smile and laugh as they put on the shirts.

*Students pretending to be truffula trees*

The group is buzzing, calling out comments. Caterina stands up, and, posing as a tree, holds her arms outstretched above her head. Amanda encourages the other students to do the same. Amanda asks how they, as a truffula tree, are feeling. Caleb says he feels tired having to hold up his tuft (the top branches and leaves of the tree). Amanda reads an excerpt from the book, and asks, "You're a truffula tree, what do you see right now?" Smiling, students use their imaginations to answer: "I see butterflies and birds. Rude. He's taking my friends; I don't see more trees; I see the Onceler coming!"

The students sit back on the rug and Amanda passes out a copy of *The Lorax* to each child and notes on what they had previously discussed about the book. She asks them to look through the book and their notes for reasons to convince the Onceler not to cut down any more trees. She asks students to signal with a thumbs up when they have their ideas.


*Students reading through The Lorax*

The previously noisy group is now completely silent and focused. The children take their charge very seriously, reading through the text carefully. When everyone has signaled that they have some ideas, they share the reasons why they want the Onceler to stop cutting down trees to use in their letters. But taking the perspective of a tree can be challenging. Caleb's initial answer is, "he's going to be rich," referring to the Onceler. Caterina steps in to clarify, explaining that Caleb should say "you" to the Onceler. Amanda reassures him, "It's okay. You'll get used to talking like a tree."

Each student shares their argument to use in the letter to the Onceler and Amanda writes them down. Caterina shares a second reason. Using classic Seuss cadence, she asks rhetorically, "If I was the last truffula tree, would you cut down me?"

*The Lorax* raises a very serious issue about the world these children will inherit; even 50 years after the book's publication, deforestation continues at an alarming rate. The children come up with well-reasoned arguments not to cut down trees. They are taking the point of view of the trees and, one could argue, developing empathy for the natural world. The lesson is empowering to these English Language Learners: there's a sense of belonging, they are taking risks speaking in a second (or third language), expressing their ideas, actively participating, and moving around. The lesson is also meaningful; students are interested, invested, and engaged. They are imagining, pretending, and exploring different perspectives. Throughout, they exhibit moments of joy, surprise, smiles, and laughter. This learning experience illustrates the indicators of playful learning as first graders tackle important learning goals.
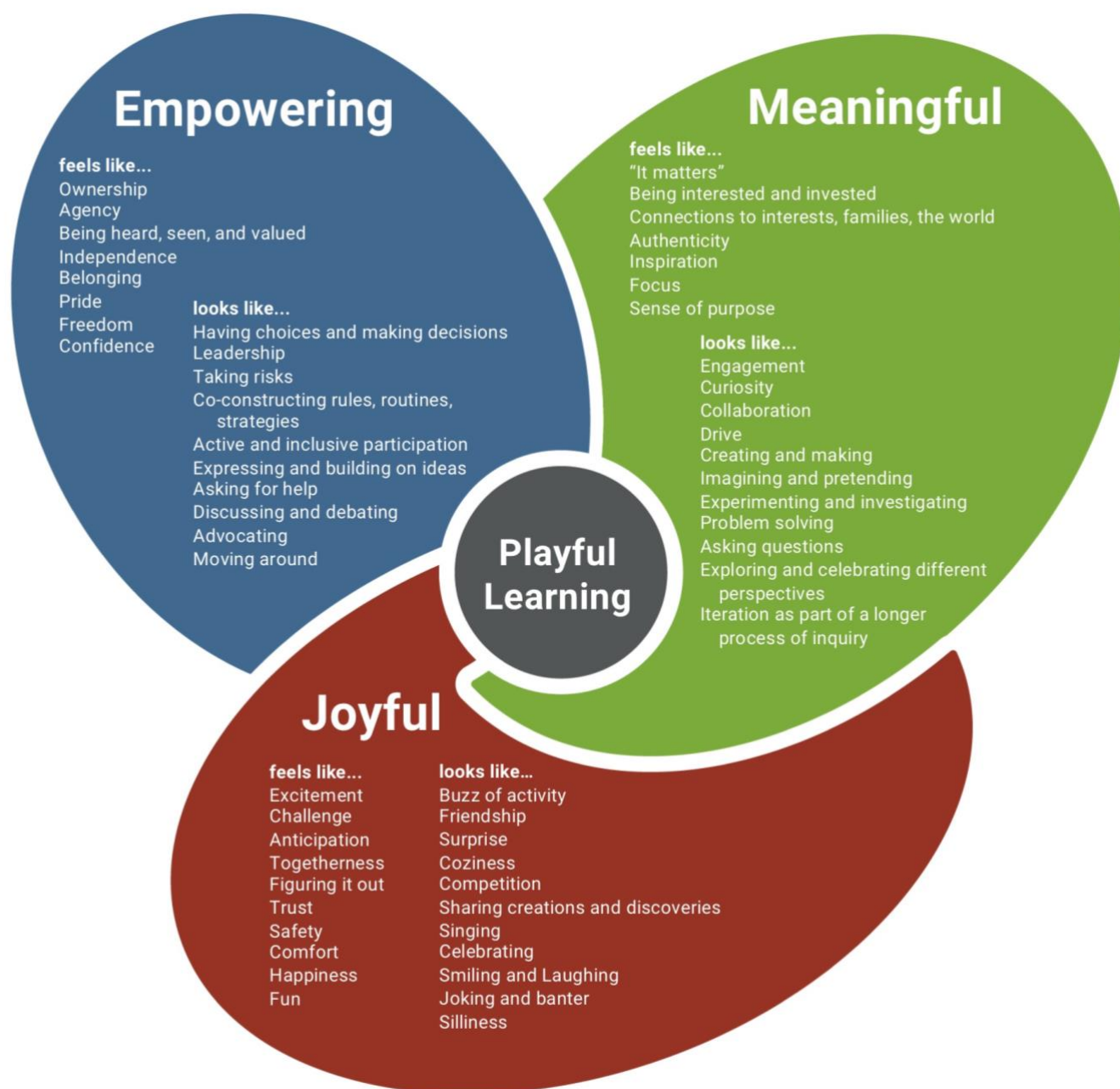
## Indicators of playful learning from six Boston-area schools

As we observed learning experiences, such as the ones in Suzie and Amanda's classes, and conducted interviews with teachers, school leaders, and students, we identified three categories that describe the nature of playful learning: empowering, meaningful, and joyful. Together, we call these categories the Indicators of Playful Learning: Six United States Schools (see Figure 1). Because learning through play includes both subjective and objective dimensions, within each category we name psychological states ("feels like") as well as observable behaviors ("looks like") that serve as markers that can be identified during playful learning experiences. When all three categories are present, represented by the intersection of the petals in the diagram, playful learning is likely occurring.

Playful learning involves **empowering** experiences, where students feel a sense of agency and belonging in the classroom and in the wider school community, and confidence to share themselves and their ideas. As Nicole A. DuFauchard, head of The Advent School explains, "They feel like they own the building. They walk through the building with a sense of belonging and ownership." Teachers explain that empowering learning experiences happen within boundaries and structure. Clear routines and schedules provide students with developmentally appropriate choices to demonstrate independence and leadership and co-create rules and norms. Empowerment fosters the courage for students to take risks, and it looks like students participating actively, expressing and building on peers' ideas, discussing and debating, moving

around, and asking for help from each other and adults. This sense of empowerment also extends beyond the classroom. As Cambridgeport principal, Katie Charner-Laird, explains, "I think of [empowerment] in at least two ways. Empowered meaning that they're empowered to make decisions and choices, that the work has some choice. But there's also empowered as in, this work that I'm doing empowers me to do other things in my life."

Figure 1. Indicators of Playful Learning: Six United States Schools



## Empowering

feels like...
Ownership
Agency
Being heard, seen, and valued
Independence
Belonging
Pride
Freedom
Confidence

looks like...
Having choices and making decisions
Leadership
Taking risks
Co-constructing rules, routines, strategies
Active and inclusive participation
Expressing and building on ideas
Asking for help
Discussing and debating
Advocating
Moving around

## Meaningful

feels like...
"It matters"
Being interested and invested
Connections to interests, families, the world
Authenticity
Inspiration
Focus
Sense of purpose

looks like...
Engagement
Curiosity
Collaboration
Drive
Creating and making
Imagining and pretending
Experimenting and investigating
Problem solving
Asking questions
Exploring and celebrating different perspectives
Iteration as part of a longer process of inquiry

## Playful Learning

## Joyful

feels like...
Excitement
Challenge
Anticipation
Togetherness
Figuring it out
Trust
Safety
Comfort
Happiness
Fun

looks like...
Buzz of activity
Friendship
Surprise
Coziness
Competition
Sharing creations and discoveries
Singing
Celebrating
Smiling and Laughing
Joking and banter
Silliness

**Meaningful** learning feels interesting and is connected to students' family, friends, interests (in and out of school), and issues of importance in the wider world. It involves the sense that what is being learned matters within the classroom and beyond, and students feel inspired and a sense of

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purpose in what they are learning and doing. As Calvin, a seventh grader at the Atrium School, shared, a meaningful playful learning experience looks "interactive and lets kids like me show our work in ways that are creative. [It involves] something relevant to our lives, an object or a person that allows us to connect with it and [become] involved with it." Meaning is found individually (e.g., a student who is engrossed in inventing his own myth and imagines himself publishing books) and collectively (e.g., a group of students who are deeply invested in equity and social justice). Meaningful learning looks like students who are engaged, curious, creating, imagining, and investigating. It looks like students who feel the drive to strategize about how to solve problems (rather than just looking for the right answer), ask questions, explore different perspectives, and can be found in a long arc of inquiry where students iterate and revise ideas and products.

Playful learning involves experiences that are **joyful**, where learners may be excited or feel anticipation about what is to come. Joyful learning experiences often involve a sense of togetherness, working towards a common goal to figure something out. While joy can encompass happiness and fun, it is a complex emotion that can also go much deeper. It is about experiencing challenge and feeling trust, about having a place where learning is safe, and where students can share creations and discoveries and celebrate together. Students enjoying learning often smile, laugh, or engage in friendly banter. We see these illustrated in the photos from the examples we share in this paper. There is frequently a buzz of activity, and maybe even some silliness. Joy can also be surprising and, for some, involve competition. As Sydney Chaffee, a 9th grade teacher at Codman Academy shared, "Joy can come from being recognized. Joy can come from having fun. There is joy in discovery and there is joy in having an idea. There is joy in being part of the learning community."

It is unlikely that even in the most playful classroom, all the "feels like" and "looks like" markers under each of the indicators will be visible or felt all the time. The markers in each indicator offer a range of emotions and behaviors learners may exhibit. Similarly, although the three indicators describe different facets of playful learning, there can be some overlap between the three categories. For example, while a sense of belonging can be empowering, it can also be a source of joy. And while problem solving, asking questions, and creating are meaningful experiences for students, they can also offer a sense of agency as described under empowering. We don't wish to create strict distinctions between the indicators, rather, we believe that by identifying and creating a model of what playful learning may look or feel like, educators will be better equipped to foster it in their classrooms and schools.

Next, we turn to an example that illustrates the indicators of playful learning and demonstrates how playful learning can support students in studying complex societal topics in school. What does playful learning look and feel like when students are investigating and advocating for change on serious topics? To contribute to this conversation, we share an example from a 7th grade classroom that illuminates how playful learning can support investigations of serious issues and further illustrate what playful learning can feel and look like across ages and content areas.

## Confronting social issues and building community through groupwork in 7th grade

One morning in middle school teacher Emily Merrigan's Reading and Writing class at the Eliot School, 7th grader (generally 12- and 13-year-olds) Isabella is engaged with her groupmates on the last day of preparations before she and her classmates will give presentations about a variety of social issues. Isabella joins Alex and Alisha in their Race and Ethnicity group. The focus of their presentation is the current racial and ethnic inequalities in the U.S. They have spent over a month researching this topic of their choosing. Previously, they created a timeline, now displayed in the classroom, of the Civil Rights and Black Lives Matter movements, featuring prominent leaders— including Martin Luther King, Malcom X, Ruby Bridges, and Colin Kaepernick.

The threesome spends 25 minutes working on the presentation. Alisha is creating PowerPoint slides on a laptop. Isabella and Alex write their presentation scripts on notecards. All three are deeply engaged, working quietly for minutes at a time. There are also moments of smiling, friendly banter, and laughter, both at themselves and with each other.



*Alisha, Isabella, and Alex working together on their project*

Tensions about the upcoming talk also arise. When Isabella tells Alex she's not done with her evidence, he shakes his head and exclaims, "it's due tomorrow!"  Isabella takes the comment in stride, getting up to look over a chart Emily has created with the heading, "When analyzing evidence ask."

Occasionally, one of the group members will ask for advice or support from the others. For example, Alisha voices apprehension about the upcoming presentation. Isabella shares her nervousness and reassures her. Indeed, it is a challenging task to both synthesize research on such a complex topic and stand up in front of a group of peers to share the findings.

Isabella calls Emily over for a consultation. She shows Emily a note card explaining, "This is my beginning."  She hands Emily the card. Emily reads it out loud, "There are many cases of injustices in the justice system that are injust…"

*Isabella asking Emily for help*

Isabella: Does it make sense?
Emily: …Is what you're trying to say that People of Color are accused more often than White people?
Isabella: Yes…they are being…accused for no reason.
Emily: There is this word: disproportionate. It means unequal.

Isabella uses the word in a sentence, saying, "Disproportionately accused of different crimes." As she walks off to help other groups, Emily reminds Isabella, "Where is your evidence? What statistics are you using? What stories are you using?

Around the room there is excited activity as other groups prepare their talks. Isabella takes initiative, asking Alisha and Alex if they're ready to practice their presentation. She tells them: "I just hope nobody's gonna make me laugh!" For some privacy and quiet, the group goes into the hallway to practice their presentation. Through their practice, the threesome realizes that their presentation is not perfect and offers each other encouraging smiles and takes note of stumbles. Isabella comments that these stumbles mean that they need to look back and change their writing to make it clearer. After they make it through the entire presentation, there are big sighs of relief. Isabella admits, "It makes me kind of nervous when I read it out loud." They return to the classroom to discuss changes and make final iterations so that they will be ready for tomorrow's presentation.


*Alex, Alisha, and Isabella practice their group's presentation*

Asked about her experience in the Race and Ethnicity group, Isabella explains that she enjoys the friendship and camaraderie:

> We're like a group of people with different personalities. We all have a little bit of goof in us, so we have fun. Also, we all have a connection with our group project...we had a topic in common.

Her enjoyment goes beyond the group, explaining, "I like doing all of this research and informing people."

As illustrated by the exchanges between Isabella and her classmates, playful learning brings meaningful topics to life. By providing autonomy and space for discussion, Emily gave her students the opportunity to research social issues that were personally meaningful to them, while giving them the space to discuss, disagree, support one another, and even laugh together. Playful learning does not mean that content or serious topics are taken lightly. On the contrary, playful learning may expose students to challenging learning experiences, and at the same time, playful learning can create the conditions for students to feel comfortable leaning into these challenges. Of course, pressing, personally meaningful issues like racism can be incredibly sensitive to address, and we believe that as educators and students explore the possibilities of playful learning and co-create learning experiences, they can also experience the affordances that playful learning can offer for empowering learners to explore topics of interest.

We feel that this example captures the indicators of playful learning. It is an empowering learning experience in the sense that the students had ownership over the topic, that they were being heard and had a sense of pride in their work. It is meaningful in that they were interested and invested in their inquiry and that the topic connected to their interests. In short, it mattered to them. We even see joy in this learning experience. Here we mean joy not only as fun, but also as the challenge, excitement, and togetherness of figuring out how to present this important topic to their classmates, and in the safety it provided to take risks and imagine alternatives to a pressing social issue.

## Indicators of playful learning beyond six Boston-area schools

As illustrated in the three examples from Suzie, Amanda, and Emily's classrooms, we found that playful learning in the schools and classrooms we studied entailed empowering, meaningful, and joyful learning experiences. The examples from different grade levels and content areas demonstrate the power of playful learning. The teachers created conditions that allowed students to exercise their agency, explore materials and topics that mattered to them, and take risks in their learning within the context of trusting relationships and positive challenge. The indicators, along with the markers of what they can look and feel like in classrooms, offer a model of what playful learning may entail in schools across the U.S.

Of course, the indicators were developed based on the words and ideas of a small number of teachers in these schools, in a specific area of the U.S. How well do these indicators represent playful learning across the U.S.? This is an empirical and a theoretical question. Empirically, we make no claim that these indicators represent the entire country. The Boston area differs in a number of respects from the rest of the country that may influence beliefs about the role of play in schools. For example, of the largest public school districts in the country, spending per pupil for K-12 education in Boston is the second highest in the nation (United States Census Bureau, 2020) and class sizes are smaller (Boston Public Schools Communications Office, 2018; Salmon et al., 2018; New York City Department of Education, 2019). Research in rural and suburban areas outside of the Northeast of the U.S., and in schools with student bodies of different cultural backgrounds than those in this study, is needed to empirically answer this question.

At the same time, there are theoretical reasons to believe that the indicators may be applicable to U.S. schools beyond the six in this project. There are broad similarities between Boston and the rest of the country in the field of education: it faces similar struggles regarding income inequality and institutional racism. The area's public schools operate within the same accountability system[10] as the rest of the country. The Boston area also has a history of being seen as a national leader in education. It is home to the nation's first public school, and Massachusetts state standards were used as a guide for the national Common Core State Standards. The Boston Public School's early childhood department is also seen as a model for other school districts (Bardige et al., 2018). Thus, although there are certainly unique aspects of the Boston area to consider in interpreting the indicators of playful learning presented here, we also believe what we found in these six schools may have relevance in other parts of the country

Indeed, our findings resonate with the literature on playful learning in U.S. schools. In the academic literature, the ways in which playful learning has been observed, studied, and discussed in U.S. schools include many of the same characteristics. Across subjects and grade levels, playful learning is associated with empowerment (e.g., Husbye et al., 2012; Martin, 2015; Stuber, 2007; Sullivan & Wilson, 2015) meaningfulness (e.g., Axelrod, 2014; Cushman, 2012; Fantozzzi et al., 2018; Ghiso, 2013), and joyfulness (e.g., Freeman & Somerindyke, 2001; Klopfer et al., 2005; Lysaker et al., 2010; Scully & Roberts, 2002). For example, relating to empowering, Husbye et al. (2012) found that 2nd grade students who participated in playful learning during a filmmaking class showed ownership and gained independence through the iterative process with their peers in producing their films. Illustrating meaningful aspects of playful learning, Sullivan (2011) found that 6th graders who worked on solving an engaging light-sensor robotics problem experimented, debated ideas, and discussed possible solutions. Lysaker et al. (2010) found that when kindergarten and 1st grade students engaged in play during a Writer's Workshop, they expressed joy (as observed as smiling, laughing, and singing) during the writing process.

In a country as vast and diverse as the U.S.—there are almost 135,000 schools—there is likely no one set of indicators that would adequately capture all contexts (Riser-Kositsky, 2020). However, the range of schools (i.e., district, charter, independent) in this study increases the likelihood that the indicators will align with other settings. We believe that these indicators can provide a starting point that educators across the U.S. can build on, and we encourage educators to modify these indicators for their contexts.

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[10] That is, the federal mandate that beginning in 3rd grade students be tested in different subject areas.

The question of what playful learning looks and feels like in specific schools is important because in order to promote more learning through play, educators need to have a clear understanding of what they are aiming for. Along with the indicators created at the International School of Billund in Denmark (see Appendix C) and in three schools in South Africa (see Appendix D), the indicators developed in the six U.S. schools in this study contribute to our understanding of what playful learning looks and feels like in different cultural contexts. A goal of the Pedagogy of Play project is to create a process that will help educators define what playful learning looks and feels like in their contexts and to foster playful learning experiences across grade levels, educational aims, and cultural settings. Future research by the project in two additional settings, Colombia and Mexico, will contribute further to this effort.

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# Acknowledgements

## Appendix A: What playful math learning can look and feel like at a distance

Along with many schools around the world, in March of 2020 the Atrium School, an independent pre-K through 8th grade school in Watertown, Massachusetts (USA), closed due to the COVID-19 pandemic. The school's small class size and resources (e.g., all students have access to high speed internet at home) gave it advantages as it quickly pivoted to distance learning. Building on the trusting relationships established between members of the community during the first part of the school year, and providing continuity to learners (e.g., maintaining similar class structures) were also critical to make the transition to online learning successful.

But *playful* math lessons online? The juxtaposition of math, online instruction, and playful may seem oxymoronic. Here we share examples that challenge this impression. While not what teachers or students prefer, the Atrium educators strive to create empowering, meaningful and joyful lessons online.

**Ten plus ten plus ten… plus ten is a big number!: A 1st grade math small group**

In a breakout room,[11] Amir and Emily are discussing adding and multiplying groups of tens. Amir exclaims, "These are big numbers!" Because it gets them past one hundred quickly, first graders are intrigued by counting up by tens. They love big numbers. Learning different strategies for grouping tens, gaining automaticity in adding and multiplying by ten, and enjoying math are the learning goals 1st grade teacher Bob Dowling has for Amir, Emily and their classmates Henry and Olivia. In a half-hour small-group Zoom call, he provides a variety of activities and discussions with all four students and in pairs in the breakout rooms.
The lesson begins with Bob displaying cards with ten dots and asking the children how they can figure out how many dots there are in total. After children tell him that for four cards dots you can use multiplication to get forty, he asks them, "What are you doing when you multiply?" Olivia answers immediately, "You're basically doing ten, four times." Bob follows up, "What are you doing with the tens?"

Olivia: We are doing ten, plus ten, plus ten, plus ten, basically. And 4 x 10 is a short way to write it.
Bob: You could have four tens. What else could you use?
Olivia: Ten fours equals forty.
Bob poses another question: Which way is more efficient? This creates an enthusiastic response from all the children, who call out: Tens! Then, in quick succession:
Olivia: The multiplication way.
Amir: The least efficient way is ones.
Henry: Or zeros!

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[11] Teachers at the Atrium use the online platform Zoom for their lessons. One feature of Zoom is that teachers can create "breakout rooms" and assign smaller numbers of learners to specific groups. Teachers can visit these rooms and then bring the class back together in the "main room." Another Zoom feature is a chat box where participants can send written messages to individuals or the whole group. In this session, Bob discourages the use of the chat feature, noting that sending individual messages is "like whispering to a friend during a conversation" and messaging everyone is akin to "calling out during a class discussion."

A few minutes later, Bob sends the children to breakout rooms to consider this problem: There are ninety fingers. If everyone has ten fingers, how many people are there? In their group Amir and Emily struggle, but remain positive. Emily notes, "I know I can ask for help."


*Amir and Emily in the breakout room*
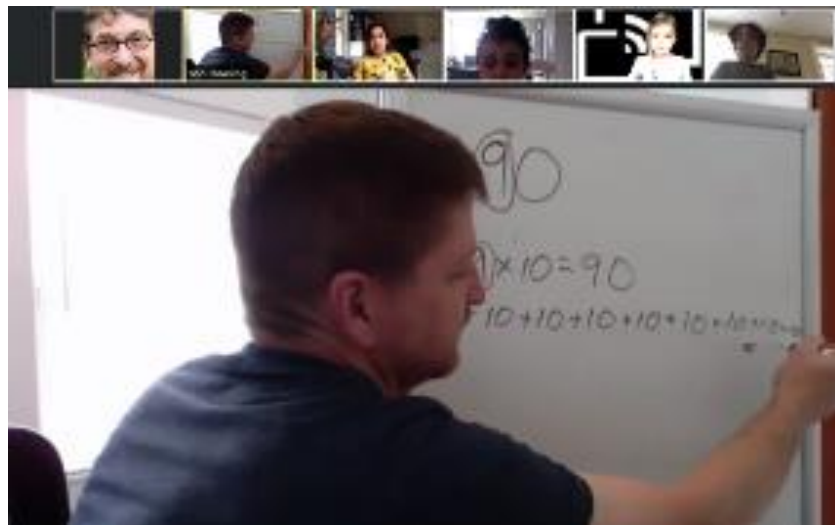
Bringing the group back together, Bob does not ask for the answer. Rather, he asks: "Who can tell me how they solved the problem?"

Amir: There were ninety fingers and each person has ten. Ninety is you get a nine and then a ten. So, it's nine people because everyone has a ten.

Bob illustrates Amir's solution on a white board for all to see.


*Bob illustrating Amir's comment*

There is time for one more breakout group where the children use playing cards to compare the size of numbers. Bob generally has them use concrete objects—pebbles or even blades of grass—in these virtual lessons.

Returning to the main room Olivia notes, "There are no grownups here. No one can tell us what to do. Let's go and have a party!" Emily adds, "Play with your backgrounds." But before the party can start, Bob returns. Amir asks if they can have a party after the lesson. Bob's answers, "Not today, but I do have a question. The other math groups were asking if we could have a math group with the whole class where we just play games." There is a chorus of yeses, with Olivia declaring it a math party. Bob agrees with the gathering's new name, to the delight of all.

**Multiples of nines, square numbers, and the Fibonacci sequence: 5th graders playing with patterns**

Since the start of the school year in September, the 5th graders in co-teachers Sam Bloch and Diane Foster's class have been discussing emerging patterns on their monthly calendar. With each day bringing more data, the children worked to discern what specific symbols mean and speculated on what the next day might bring. By February the class found the patterns purchased by their teachers to be a bit boring, so for March there was a competition where a student-made pattern was selected and used. This continued for April and May. Now, on May 18th, the class is meeting virtually at 2:30pm for an end-of-day Zoom call. They continue to discuss the calendar pattern.



*The May Calendar (through the 18th)*

Today a pizza slice icon appears on the calendar. It joins another pizza slice on May 9th, a variety of face symbols and some smaller emojis (pine trees, light bulbs and a face with sunglasses). As the fifth graders join the zoom call, Sam asks in chat box about what they think the pizza slice is about. There is a consensus that it involves multiples of nines and will next appear on the 27th.

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*The 5ᵗʰ grade's end-of-day zoom call*

Sam then asks about the small emoji with sunglasses that appears on the 1ˢᵗ, 4ᵗʰ, 9ᵗʰ and 16ᵗʰ. The group quickly concludes this involves square numbers. With eighteen days of data, the class has figured out most of what the monthly patterns involve. But one puzzle remains: the pine trees on the 1ˢᵗ, 2ⁿᵈ, 3ʳᵈ, 5ᵗʰ, 8ᵗʰ and 13ᵗʰ. Diane notes that "this is a really hard one that we haven't seen before."

Leora observes that the pine trees appear on both even and odd days. Then Charlotte begins an explanation:

Well, one plus two, one and two, they both have the pine tree. And one plus two is three. Three has another pine tree, and two plus three is five. And five has another pine tree. Five plus three is eight. Eight has another pine tree. And eight plus five is thirteen, and thirteen has another pine tree.

Sam: So when do we see the next pine tree?

Charlotte: Well thirteen plus eight is twenty-one, right so, on the 21ˢᵗ.

Sam: Yeah on Thursday. Thank you Charlotte. Now does anyone know what that pattern is famously called? Alright birthday boy, do it.

Alex: It's called a Fibonacci sequence. My dad talks about it all the time. He's like, 'this is a Fibonacci sequence' and I'm like 'okay, cool'.[12]

Sam: (*laughs*) Yeah, it is cool. Fibonacci sequences are awesome. They appear a lot of times in nature and in repeating patterns that you see without even knowing it. So thank you to the person that made this calendar for including the Fibonacci sequence.

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[12] For a playful explanation of the Fibonacci sequence see https://www.youtube.com/watch?v=wTlw7fNcO-0&vl=en

Calendar math mysteries solved, the class moves on to talk about a project they are working on and the tasks for tomorrow.

<p style="text-align:center">***</p>

Two different age groups experiencing playful math learning online. Learning that is empowering; where there is active participation, co-construction of routines (a math party; a student-constructed calendar), where students express and build on ideas. Interestingly, Sam notes that some shyer students are participating much more online, often in the chat box. Learning that is meaningful, where students are investigating and problem solving by asking questions, discussing, and collaborating. There is a sense of real interest and curiosity about adding by tens and solving pattern mysteries. Learning that is joyful, where there is smiling and laughing, a little silliness (a math party!), and sharing discoveries. During both sessions, there is a feeling of coziness as the students seem relaxed and comfortable, and there is a sense of warmth in their interactions with peers and their teachers. Even physically apart, learners are coming together.

# Appendix B: Participating Schools

The Cambridgeport School is a public school[13] in the Cambridge Public Schools District, a city just outside of Boston. It serves students grades pre-kindergarten through 5th grade. In total, there are 325 students in the school, 44.1% of whom identify as students of color, 33.5% of whom are identified as high needs,[14] and 21.5% of whom are identified as economically disadvantaged.[15] The school states its core values as: "Be kind, be responsible, be reflective, aim high." Teachers share a belief that children must engage with their world in order to make sense of it and build their knowledge, and that it is through hands-on, real-world inquiry that children learn. The school community has also expressed a strong commitment to promoting social justice.

The Eliot School in the Boston Public Schools (BPS) District serves students from pre-kindergarten through 8th grade. It is designated an "innovation school", which gives it increased autonomy within BPS to make decisions regarding curriculum and instruction, staffing, and policies and procedures. Located in the North End neighborhood of Boston, the school serves a population of 675 students, 38.7% of whom identify as students of color, 39.5% of whom are identified as high needs, and 17.6% who are identified as economically disadvantaged. The Eliot School's mission is to provide a well-rounded education that helps every student achieve academic excellence. Its learning community follows five guiding principles: "Be Respectful, Responsible, Safe, Kind and Inclusive." In their aim to continue innovating, the Eliot created uninterrupted blocks during the daily schedule to implement playful learning experiences, which they call EPIC (Eliot: Play. Innovate. Create.).

The Josiah Quincy Elementary School is a public school in the BPS District serving 795 students from pre-kindergarten to 5th grade. Located in Chinatown in Boston, the school has a large percentage of Asian students (62.3%), with a minority of African American, Hispanic, and White students. 61.4% of the students are English Language Learners, 83% are identified as high needs, and 50.7% are identified as economically disadvantaged. The school is in the process of adopting the International Baccalaureate Programme, an inquiry-based, interdisciplinary program that focuses on the whole child. The school provides a number of programs to meet students' needs, including an early intervention center-based classroom for Chinese language students, advanced work class for 4th and 5th grade students, sheltered English immersion for Chinese language students, and programs for students with learning disabilities, including inclusion classrooms. Having a dragon as its mascot, the school emphasizes what it calls the FIRE values: Focus, Integrity, Respect, and Empathy.

Codman Academy is a public charter school serving students from kindergarten through 12th grade, with a lottery admission system. Located in Dorchester, a neighborhood of Boston, Codman Academy is a Title I school,[16] with students of color comprising 99% of the student body. 72% are identified as high needs, and 61.7% are considered economically

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[13] All public schools are non-fee paying.

[14] High needs refers to students needing support in multiple areas, such as students with special needs, English Language Learners, recent immigrants, or students from low-income households or who have experienced homelessness.

[15] Economically disadvantaged is the metric that the State of Massachusetts uses to identify students from low income families who participate in one or more state-administered assistance programs.

[16] Title I is a federal program that provides financial assistance to local schools with high numbers of students from low-income families to help ensure that all children meet state academic standards.

disadvantaged. The school emphasizes social justice in its standards-based curriculum grounded in their Expeditionary Learning (EL Education) approach, which focuses on mastery of knowledge and skills, character, and high-quality student work. The school sustains partnerships with a local health center, theatre company, YMCA, and youth foundation.

The Advent School is a fee-paying independent school serving students from pre-kindergarten through 6th grade. Located in the Beacon Hill neighborhood of Boston, Advent's has 200 students who come from a wide range of neighborhoods in and around Boston. 34% of students identify as students of color and 24% of students receive some form of financial assistance. Advent's Reggio Emilia-inspired curriculum places an emphasis on social justice and encourages teachers to approach instruction thematically, integrating themes across all subjects of the curriculum.

The Atrium School is a fee-paying independent school in Watertown, a city near the Cambridge line in the greater Boston area. With a total enrollment of 125, Atrium students come from over 20 surrounding communities. 25% identify as students of color, and 30% of families receive needs-based financial aid. With one classroom per grade, the school has two full-time teachers in each pre-k through 5th grade classroom, and five full-time subject specific teachers in grades 6th through 8th. Atrium's mission is to promote "Excellence with Joy" through a balanced curriculum that incorporates arts, hands-on projects, and collaborative work in an environment that is creative, nurturing, and driven by values of social justice and equity.

# Appendix C: Indicators of Playful Learning: International School of Billund

## Choice

**feels like...**
autonomy
empowerment
intrinsic motivation
ownership

**looks like...**
setting goals
negotiating
choosing how long to work/play
choosing collaborators and roles
influencing the
direction of learning
making and changing rules
being spontaneous
moving around

## Wonder

**feels like...**
engagement
novelty
fascination
curiosity
surprise

**looks like...**
risk taking
trying
reflecting on mistakes
asking questions
that further learning
focusing attention
improvising
pretending
inventing
improvising
imagining
exploring
creating

## Playful Learning

## Delight

**feels like...**
satisfaction
enjoyment
belonging
pride
excitement
inspiration
flow

**looks like...**
celebrating
discovering
being silly
competing
working through a challenge
singing/thumming
anticipating
expressing excitement
being altruistic
smiling/laughing
joking
hygge

## Ubuntu

### Ownership

**feels like...**
empowerment
responsibility
courage
pride
freedom
part of something bigger

*ubuntu: Learning is a communal effort in which learners feel encouraged to lead their learning and support each other in the process.*

**looks like...**
valuing own and others' ideas
seeing peers as resources
confidence
collaboration
voicing opinions

### Curiosity

**feels like...**
engagement
challenge
fascination
inspiration
eagerness
positive frustration

*ubuntu: The learning community encourages individual and collective inquiry, risk taking and exploration of "wild ideas."*

**looks like...**
considering a variety of solutions
discussing and debating
asking questions
learning from mistakes
experimenting
creating
imagining
huddling

### Playful Learning

### Enjoyment

**feels like...**
trust
anticipation
belonging
excitement
safe
fun

**looks like...**
celebrating
smiling and laughing
being surprised
participating actively
joking
singing

*ubuntu: Social bonding creates an atmosphere of warmth and excitement.*

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