

The scale of technological changes coming will significantly impact how we live, and thrive, in the future. And it's reshaping how we prepare children for success in this new future. As educators, it will be important for us to transition from acquisition of knowledge, to honing a broader set of skills, to ultimately building confidence in learning itself. Highly engaging, hands-on, playful learning is one of the ways that educators can help children achieve this goal.

The unrealized potential of learning through play at school

Building confidence through development of holistic skills

The need for learning through play

Increased focus on measuring results

The LEGO Foundation recently released the results of a five-year research initiative that looked at learning through play as a way of enhancing educational curricula. [The study](#) found that in the past few decades, educators around the world have been striving to teach STEAM subjects that will be increasingly important as the pace of innovation grows and the job market evolves. Emphasis on the content of STEAM subjects has led to an increased use of didactic methods and more focus on quantifiable academic achievements. But focusing exclusively on what is quantifiable means educators have had less time to promote the development of holistic skills—social, emotional, physical and creative skills—that are essential for creating lifelong learners.

Positive impact of learning through play

Learning through play is well established as a method for developing holistic skills in the early learning years. Despite the evidence, many educators have minimized the opportunities for playful learning in favor of didactic approaches. Some

educational researchers have pointed out that this recalibration is needless, as experts have established that “learning through play supports the development of early literacy and numeracy skills in an integrated approach, while also cultivating children’s social, emotional, physical, and creative skills” (Marbina, Church & Tayler, 2011).

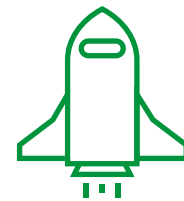
Can learning through play be effective for learners of all ages?

Because “play” is so strongly associated with preschool, very little research has been done to examine the benefits of learning through play in primary school. In conducting this five-year initiative, the LEGO Foundation found that there was little to no mention of “play” or “play-based learning” for children beyond eight years old. The key question became, what is the role of learning through play in helping prepare primary students for future education and careers?

Defining learning through play

Tension between “play” and “learn”

Play and learning are often seen as dichotomous concepts—play is something fun that young children



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– Marbina, Church & Tayler, 2011

engage in, while learning is a more serious task that older children engage in. This is sometimes why educators turn to didactic methods when they're under pressure to produce standardized results on cognitive skill tests.

While learning through play might lead one to think of pure “free play,” the evidence suggests that learning through play at school is “combining playful child-directed activity with teacher or adult supported or guided learning objectives” (Weisberg, Hirsh-Pasek & Golinkoff, 2013). This includes voluntary play, guided play, construction play, collaborative play, learning through games, physical play and digital play, among others.

5 essential characteristics of learning through play

Previously, the LEGO Foundation, in partnership with experts from four universities, worked to establish the five characteristics that define learning through play. These include learning that is:

1 Meaningful – when learners can relate new experiences to something already known, thereby making connections between things that are relevant to them. Integrated approaches are meaningful when they are designed to include relevant and engaging tasks, inquiry questions, and problems or projects that are self-sustaining and thought-provoking, compelling learners to find out more. Integrated pedagogies are designed to include processes that enhance meaning, ask about past experiences and build scaffolding—guiding learners from what is known to what is unknown.

2 Socially interactive – when learners are involved in working together in groups, and are using strategies that have been designed to maximize the benefit of cooperative learning. When learning occurs in new and different settings and contexts, or in a group around an activity or experiment, it can expand social networks and dissolve barriers between individuals and groups that are sometimes created in traditional classroom settings.

3 Actively engaging – when learners have choices—big or small—to make about the content or processes involved in their learning. Active engagement occurs when learners are deeply immersed, rely on and support other learners, and teachers guide learners to formulate understandings and develop new skills through prompting and questioning rather than solely through explicit instruction. Active engagement consists of the three dimensions: feelings about learning (affective), actions towards learning (behavioral) and thinking/processing within the learning context (cognitive). Engaged learners demonstrate motivation and commitment towards their learning, often extending themselves beyond set goals and expectations.

4 Iterative – when learners have the opportunity to explore and investigate new concepts—to try, and fail, and try again. When learners share their ideas with each other and revise and recalibrate their thinking based on testing, trying out possibilities and revising hypotheses. Teachers encourage iteration through

guiding learners with targeted, encouraging questions, hints and modeling.

5 Joyful – when learners are curious, enjoy learning new things and overcome challenges through positive peer and teacher interactions. This is characterized by interest and motivation, by having and making choices, experiencing learning in a range of settings, personally relating to the content of their learning, and feeling able and confident about their learning.

5 skills for holistic child development

Learning through play helps children develop a deeper understanding and broader set of skills that they will need to succeed in future education and careers. The LEGO Foundation has defined this broad range of skills to encompass:

- 1 Cognitive skills** – being able to concentrate, problem-solve and think flexibly by learning to tackle complex tasks and build effective strategies to identify solutions.
- 2 Emotional skills** – being able to understand, manage and express emotions by building self-awareness and handling impulses, as well as staying motivated and confident in the face of difficulties.
- 3 Physical skills** – being physically active, understanding movement and space through practicing sensory-motor skills, developing spatial understanding, and nurturing an active and healthy body.
- 4 Social skills** – being able to collaborate, communicate and understand other people's

perspectives through sharing ideas, negotiating rules and building empathy.

- 5 **Creative skills** – being able to come up with ideas and express and transform them into reality by creating associations, symbolizing and representing ideas, and providing meaningful experiences for others.

Fostering learning through play

The LEGO Foundation initiative evaluated a total of more than 50 educational approaches that were associated with effective ways of learning, and decided on eight pedagogies, collectively referred to as “integrated” because they combine child-directed, teacher-guided and teacher-directed learning. These integrated pedagogies, including Active Learning, Cooperative and Collaborative Learning, Experiential Learning, Guided Discovery Learning, Inquiry-Based Learning, Problem-Based Learning, Project-Based Learning and Montessori education, were selected because they are derived from the same constructivist learning theories. These integrated pedagogies were then reviewed in terms of empirical evidence across multiple interventions to identify

to which degree they supported student outcomes as a combination of skills and knowledge.

The results show that these integrated pedagogies share many of the same characteristics of learning through play. The evidence concludes that learning through play is an integrated pedagogy, which can be seen as highly effective in building a breadth of skills alongside academic content, at the same time as having high student engagement. Students enjoy studying while benefiting from both skills and knowledge.

The importance of learner agency

Learning through play, like the integrated pedagogies included in the LEGO Foundation study, elevate learner agency by blending teacher-directed, teacher-guided and child-directed learning, ultimately encouraging children and teachers to be actively engaged in the learning process together.

- **Teacher-directed learning** – providing initial framing and explicit instruction when needed
- **Teacher-guided learning** – providing scaffolded learning at appropriate points
- **Child-directed learning** – making choices about the content and process of learning

The Victorian Early Years Learning and Development Framework, in which a triple helix represents teacher-directed, teacher-guided and child-directed learning, further reinforces the importance of blending techniques, noting that all three strands of the helix are stronger when they work together.

Evidence shows that the benefits of learner agency include making authentic and genuine choices about what and how to learn, asking questions and offering opinions, freedom to seek resources and advice, and allowing time for making and overcoming “false starts.”



Play-based learning and approaches such as inquiry-based learning, active and experiential learning are founded on the same learning theories. Central to these theories is the idea that educators and learners work together in partnership to co-construct knowledge. Learning environments are intentionally designed to maximize opportunities to foster creativity, social interaction, experimentation and a love of learning.



Fig 1 – Integrated teaching and learning approaches

(Reproduced from the Victorian Early Years Learning and Development Framework, Department of Education and Training, 2016, p. 15)



If emotional, social, creative and physical skills are of equal value to cognitive skills, they must feature prominently in programming and assessment.

Looking to the future

Allowing for depth over breadth

Learning through play also affords children the time and space they need to fully explore STEAM topics. The LEGO Foundation study indicates that in order to achieve the best possible outcomes, children would benefit from learning between and across disciplines, and connecting concepts and content with their real-world applications. In order to do this, it's important to actively engage learners, allow them to work together, and learn by doing.

Embracing new types of assessments

Given that the benefit of learning through play, like integrated pedagogies, encourages the development of holistic skills, it's important that measurement follow suit. Currently, however, measurement tends to skew towards cognitive results. Moving forward, the LEGO Foundation study shows that learning through play assessments would benefit from a multidimensional approach that factors cognitive and non-cognitive skills, with an emphasis on how learners are applying their knowledge in a range of different contexts. There are three different dimensions of assessment that educators are encouraged to start exploring:

- Intellectually ambitious performance assessments

- Evaluation tools, guidelines and rubrics that are made visible and explained to or even developed with learners
- Formative assessments during project design and development in the form of feedback

Directions for future research

The [LEGO Foundation study](#) establishes a meaningful framework for playful learning characteristics and skills that have broad validity and application to primary school education. The study also presents a number of opportunities for further research, including new metrics to evaluate the impact of non-cognitive skills, understanding the steps for embarking on and scaling up more play-based or integrated pedagogies, as well as how and where digital technology is used to support effective implementation.

As the pace of technological changes accelerates, so will the need to transition from acquisition of knowledge, to honing a broader set of skills, to building confidence in learning itself. Highly engaging, hands-on, playful learning is one of the most important ways in which educators can not only prepare students for the future, but also ensure that they truly thrive.

To read the full paper, and see the full list of resources analyzed for this initiative, visit [LEGOfoundation.com/schoolslearnthroughplay](https://legofoundation.com/schoolslearnthroughplay)

Marbina, L., Church, A., & Tayler, C. (2011). Victorian early years learning and development framework: Evidence paper: Practice principle 6: Integrated teaching and learning approaches. Retrieved from State of Victoria, Department of Education and Training website at: <https://www.education.vic.gov.au/Documents/childhood/providers/edcare/eviintegteac.pdf>

Weisberg, D. S., Hirsh-Pasek, K., & Golinkoff, R. M. (2013). Guided play: Where curricular goals meet a playful pedagogy. *Mind, Brain, and Education*, 7, 104-112. <https://doi.org/10.1111/mbe.12015>

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