

# LEARNING THROUGH Play

Foundational Research on  
Teacher Professional Development

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Summary Report

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## INTRODUCTION

# The Goals of This Report

The aspiration of the LEGO Foundation is to support children to become creative, engaged, lifelong learners, who thrive in a constantly changing world by experiencing the benefits of learning through play. Learning through play offers deep learning experiences that are joyful, meaningful, active, engaged, iterative, and social. Effective teacher professional development (TPD) is a critical component of any effort to bring learning through play into more classrooms.

The LEGO Foundation funded Education Development Center (EDC) to conduct foundational research on the elements of effective TPD, approaches to measuring teacher and student outcomes related to learning through play, and the conditions that enable and support teacher implementation of learning through play pedagogies, with specific attention paid to research on and conditions of TPD in the United States. This report brings together a review of existing research, exploration of existing programs, and interviews with teachers to illuminate the potential of TPD to support learning through play as well as the challenges present in this work.

## CONTEXT

# Teaching Today in the United States

When considering the landscape of TPD in the United States, it is important to situate TPD in the current context of school and teaching in this country.

Key factors that may influence TPD:

- Many aspects of public education in the United States are controlled at the state and local levels, leading to great variation in all aspects of the system. For example, there is no national curriculum. The Common Core Standards and Next Generation Science Standards, while prevalent, have not been adopted by all states.
- ★ Similarly, teacher preparation, certification requirements, and continuing education varies from state to state, as do teacher labor markets and the role of teacher unions.
- As in many countries, teachers are under increasing demands, particularly following the COVID-19 pandemic (Floden et al., 2020). An increasingly diverse student body requires new skills to successfully respond to students needs and abilities. Students' greater social-emotional and mental health needs bring new challenges into the classroom. A divisive political environment adds new questions and tensions regarding what can and should be taught in the classroom.

**It is critical for any TPD initiative to consider the way the education system functions in this country, the politics and structures that shape teaching and learning, and the variables that influence TPD implementation and participation.**

# Effective Teacher Professional Development

While approaches to TPD have evolved from isolated workshops to more sustained opportunities for learning, the evidence base for what constitutes effective TPD remains limited.

Models and theories for how teachers learn and grow articulate a process that includes changes in teacher practice, changes in teacher attitudes and beliefs, and changes in student outcomes (Guskey, 2002; Clarke & Hollingsworth, 2002; Quota et al., 2022). There is variation across models in the order of and relationships among these changes, and these models offer little insight into *how* changes in teacher practice, attitudes, and beliefs may occur. However, adult learning theory, which has been underutilized in theories and research on TPD, suggests that learning happens by building on existing knowledge and experience and providing content within the context of current problems and activities (Knowles et al., 2020). Further, adult learning theory emphasizes the role of learners in designing learning activities and the need to adjust activities according to prior experience (Popova et al., 2018).

“Traditional” TPD typically consists of one-time workshops focused on content divorced from practice, with little opportunity for reflection (Rucker, 2018). Approaches to TPD have evolved over the past 20 years, with increased emphasis on teachers as learners, with some approaches using the term *teacher professional learning* over *teacher professional development*, and building connections to classroom practice (Scherff, 2018). This is reflected in the dominant guidance for TPD found today, which articulates that effective TPD is content focused, incorporates active learning, supports collaboration, uses models of effective practice, provides coaching and expert support, offers feedback and reflection, and is of sustained duration (Darling-Hammond et al.,



**TPD that is sustained, includes coaching with opportunities for feedback and collaboration, and is focused on teacher practice may be effective.**



2017). Other sources of guidance offer similar elements, including practice over time, peer learning and collaboration, and ongoing activities (Learning Forward, 2022; Quota et al., 2022; Popova et al., 2018).

However, the evidence of effective TPD is minimal. A primary finding of the review of the research on TPD is that there is limited rigorous research to provide conclusive information about the effective components and characteristics of TPD, and that the elements of effective TPD articulated above are highly variable in implementation and outcomes. However, the available research does indicate that TPD that is sustained, includes coaching with opportunities for feedback and collaboration, and is focused on teacher practice may be effective. Research that focuses on TPD that supports active pedagogies introduces the element of pedagogy itself as it is enacted in the design and delivery of the TPD. For example, research on TPD in support of project-based learning (PBL) highlights the value of teachers doing PBL themselves in TPD. Literature on TPD for active pedagogies, including Montessori education, also emphasizes the role that teacher mindset and beliefs play in classroom practice.

Interviews with teachers confirmed much of the literature on effective TPD, as they described positive TPD experiences as including hands-on learning, scaffolding and support, and collaboration time. These elements may be integrated with or realized through TPD that is practice focused and includes coaching. Teacher interviews raised one additional quality of effective TPD, namely authenticity. Authentic TPD was described as being led by someone with experience in the classroom and practice-based with immediate use or application.

A review of TPD programs that align with learning through play in content, goals, or strategies yielded the finding that there are few widely available TPD programs that align with learning through play and reflect or embody all of the elements of effective TPD as defined in the current research. Further, the publicly available information about these TPD programs includes little to no reference to the pedagogy or approaches that guide the TPD itself. These TPD programs rely heavily

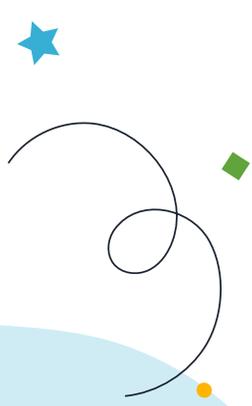
**Just as students are the center of many active learning pedagogies, teachers ought to be at the center of TPD.**

on online delivery and resources and are often curriculum based more than practice based. Technology may be a useful tool for increasing access to TPD and supporting communication and collaboration. However, there is a dearth of research on the effectiveness of online TPD (Lynch et al., 2019).

Our review of the research indicates that it may be as important to attend to the overall design and approach to TPD as it is to a focus on a checklist of elements. For all the attention paid to pedagogy in the classroom with students, there is little discussion of the pedagogical approaches used for teaching teachers.

- ➔ **How may TPD programs integrate learning through play as a pedagogical approach used with teachers in their own learning rather than a content area for teachers to learn about?**
- ➔ **How does TPD employ specific pedagogies when engaging teachers in learning about their own practice?**

Just as students are the center of many active learning pedagogies, teachers ought to be at the center of TPD.



# Enabling and Supporting Conditions for Teacher Professional Development

Teachers do not experience TPD in a vacuum. The reality is that TPD happens within systems and in a wide range of contexts, and there are a variety of enabling and supporting conditions—or barriers—that influence TPD and its effectiveness.

Much of the current understanding of enabling and supporting conditions for TPD can be considered as internal (teacher level) and external (classroom, school, and system levels), and approaches to addressing and mitigating them need to consider those distinctions (Ertmer, 1999). *A summary of key conditions identified is offered on the next page.*

Several studies identifying the conditions needed to change classroom practice noted that support for changes in teacher practice at various levels—classroom, school, district, etc.—should happen collaboratively and systematically. Efforts to support changes in teacher practice cannot be divorced from local contexts, including local perceptions, practices, and demands (Allen & Herendia, 2021).

There is an argument that effective TPD should build in activities, supports, and opportunities for teachers to work through potential or perceived barriers to implementation at all levels. If an organization aims to work with schools that are underserved—meaning they have large proportions of students experiencing poverty and/or students in a racial or ethnic minority—any TPD needs to be designed to address known barriers and provide additional supports and resources.



**It is important to include the voices and experiences of those participating in the TPD in its design. This guidance acknowledges the role that teachers' unique experiences and mindsets, along with situational and organizational factors, play in the reception and efficacy of TPD.**

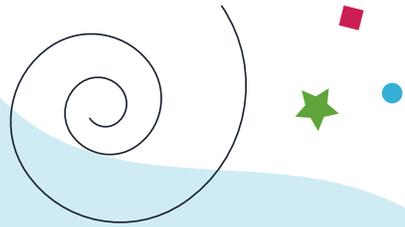
**A good question to ask about any potential TPD program is, "Will this TPD prepare teachers to work effectively within their systems?"**

In discovering the answer to that question, it is important to include the voices and experiences of those participating in the TPD. This guidance acknowledges the role that teachers' unique experiences and mindsets, along with situational and organizational factors, play in the reception and efficacy of TPD.

### Conditions That Influence TPD and its Effectiveness

Teacher Conditions	Classroom Conditions	School & System Conditions
Autonomy and flexibility	Time available during class and/or school day	School leadership
Willingness to learn	Competing curriculum requirements	School culture
Motivation	Student response	Curriculum and student assessment
Existing beliefs and mindset, including "pedagogy of poverty"*	Access to materials*	Teacher evaluation systems
		Teacher turnover*

\* Conditions that are exacerbated in historically underserved communities



# Measuring Teacher and Student Outcomes

The available research on TPD, when reviewed with the lens of seeking to understand how TPD is evaluated and measured, illustrates the wide range of approaches, definitions, and practices associated with TPD and the lack of clarity around what constitutes “effective” TPD (Popova et al, 2018).

However, there is consensus that TPD may be considered effective when it results in positive student outcomes (Kennedy, 2016; Darling-Hammond et al., 2017). Research and evaluation studies (those that are publicly available) tend to jump directly to impact on students and offer little insight into the assessment of the teacher outcomes that presumably lead to student outcomes. In addition, much of the research on TPD in the United States focuses on student outcomes as assessed by standardized testing and traditional measures of academic achievement, which may or may not be well-aligned with the TPD intervention.

The measurement of teacher outcomes from TPD is largely based on self-reports and developed by those designing and implementing the TPD. While many studies investigated student outcomes as a result of active pedagogical approaches, the specific interventions that were cited in the research varied in content and approach, were often developed locally, and did not use national or scaled models. Research on project-based learning (PBL) offered the most consideration of TPD and its role in student outcomes. Some studies reviewed multiple interventions, and others described the teaching practice that was studied. The instruments used to measure outcomes were primarily developed by the research teams involved. Some studies included references to the literature used to develop their own tools, but none used a validated tool. While there are numerous validated instruments available that measure many of the outcomes of interest, based on our review of the research, they have not been used in conjunction with research on TPD.



**It is critical to connect TPD for learning through play approaches with specific and appropriate student outcomes.**



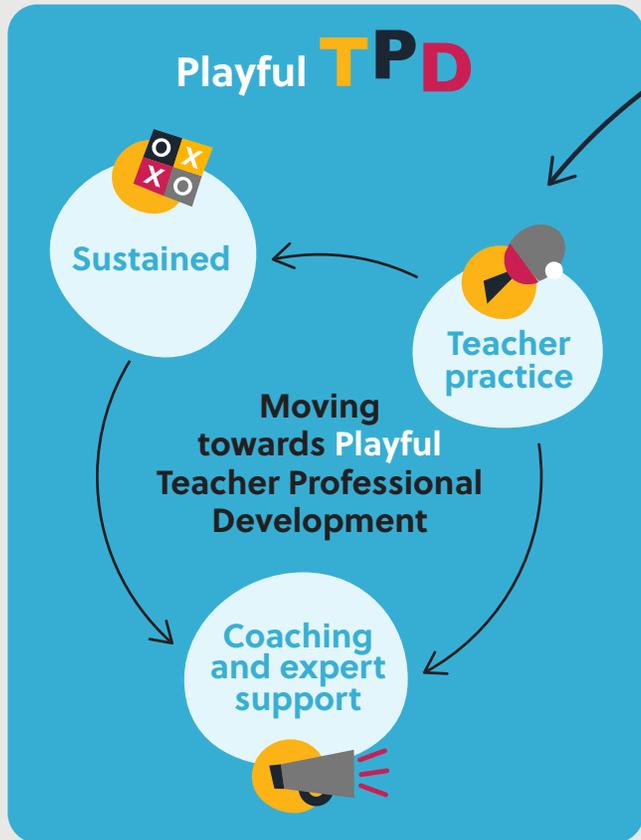
One aim of this report was to understand approaches to evaluation and measurement of TPD so as to inform future TPD efforts. There is a lack of existing measures of teacher change, most likely because (a) teacher change is difficult to measure, and (b) measures of teacher change are highly dependent on and should be closely aligned with the TPD intervention itself. There are numerous existing measures for student outcomes aligned with learning through play. However, it is critical to connect TPD for learning through play approaches with specific and appropriate student outcomes. The extent to which existing validated measures of these student outcomes align with and would be an appropriate instrument for determining the effectiveness of a particular TPD intervention requires further investigation.

## Imagining TPD for Learning Through Play

This report set out to provide foundational research on effective TPD by reviewing literature and research, interviewing teachers, and reviewing existing programs with the goals of learning the characteristics of effective TPD, enabling and supporting conditions of TPD, and evaluation and measurement of TPD. Efforts to understand these elements were focused on TPD efforts in the United States and TPD that aligned with learning through play pedagogies. **Two common refrains throughout this report are that 1. the research on and evidence base for effective TPD is limited, and 2. change in teacher practice is difficult.** However, the information that is available, along with the gaps, provides some insights into what and how future TPD in support of learning through play may take shape. This section describes a set of potential approaches, strategies, and conditions to consider when designing TPD for learning through play.



★ THEORY OF CHANGE



**Teacher conditions**

- Autonomy and flexibility
- Willingness to learn
- Motivation
- Existing beliefs and mindset



**School and system conditions**

- School leadership
- School culture
- Curriculum and student assessment
- Teacher evaluation systems
- Teacher turnover

**Student outcomes**

are specific, drive TPD design, and result from playful learning experiences.

Increase in **playful learning experiences** in the classroom (activities and interactions)

**Classroom conditions**

- Time available during class and school day
- Competing curriculum requirements
- Student response
- Access to materials

**Enabling Conditions**



## Develop a Theory and Framework That Starts with the Outcomes

An important first step is defining the goals of any TPD and developing a theory and framework that articulates the mechanisms and levers for change, the expected changes in teacher practice, and the correlating changes in student outcomes. One overarching lesson from this report is that there is often a lack of clear connection between goals and outcomes for TPD and its design. Rather than considering evaluation of implementation and outcomes as an end point, **student outcomes, and the classroom experiences that will support them, should be an input into TPD design.**

## Incorporate Elements That Show Promise

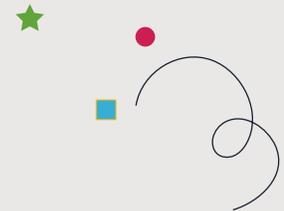
When it comes to the design of TPD, the findings in this report suggest that the following characteristics and components may be beneficial:

- TPD should be **sustained** rather than sporadic.
- TPD should include opportunities for reflection, collaboration, and support, and **coaching** may be an effective way to include those opportunities.
- TPD should be designed with specific goals for **teacher practice** and student learning, rather than focused on theory or subject content.

Strategic integration of technology may support these components, and increase accessibility. However, an over-reliance on online delivery of TPD may compromise effectiveness.

## Let Teachers Play

This report offers greater insight into the design of TPD for learning through play, namely, that **teachers should learn through play themselves.** Like learning through play, TPD should be joyful, meaningful, active, engaged, iterative, and social, and it should employ active pedagogies when engaging teachers in learning about their own practice. How can TPD engage teachers in play themselves in order to learn how to use play-based learning in their teaching? As many active pedagogies put students at the center of their learning, **TPD for learning through play should put teachers at the center of their learning.**



Adult learning theory supports this orientation and emphasizes the importance of adults being involved in the design of their own learning experience. TPD should be actively engaging for teachers and can be tailored to varying teacher experiences and needs led by expert facilitators with classroom experience.

Sustained TPD allows teachers to adapt and integrate new pedagogies and strategies into their classrooms and also to shift their beliefs and attitudes around teaching. Engaging in play themselves may also support teachers' shift in beliefs and encourage them to embrace playful learning in their classrooms.



## Consider Specific Curricula and Instruction Materials as Part of the TPD

One consideration in the development of future TPD efforts to support learning through play is that most of the research on effective TPD, and many of the TPD programs available, include the use of specific curricula and instruction materials. Doing so allows TPD to be practice focused and makes a direct connection with and transfer to teachers' classrooms. It also affords more rigorous research and evaluation as these materials often come with fidelity of implementation and aligned student assessments. **To what extent can and should TPD on learning through play incorporate instructional materials and curricula?**

## Understand and Leverage Context while Addressing Barriers

An additional insight from this report is that **TPD should be designed with an understanding of the enabling and supporting conditions that inevitably shape it.** What makes a TPD program effective goes beyond the quality of the content and delivery. It requires dedicated consideration to the enabling conditions, and more importantly, to the potential barriers that affect teachers' abilities to embrace new classroom practices and pedagogies. The overarching question when considering enabling conditions is, to what extent can these be addressed in the design and implementation of TPD? It is valuable to consider if and how TPD can address internal barriers and build in enabling supports to mitigate external barriers.



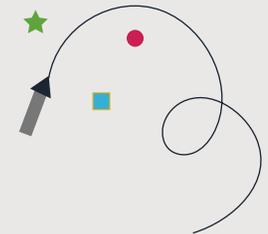


In the process of considering enabling and supporting conditions, it is critical to identify and understand how conditions change in different contexts, and how these conditions may reinforce existing inequities in communities and schools. TPD that seeks to support learning through play in historically marginalized or underserved communities must provide appropriate support and address potential barriers in those settings. Including teachers in identifying supports as well as culturally responsive practices may be a valuable strategy in this work.

## Evaluate TPD Using Validated and Independent Measures That Align with Outcomes

Research on effective TPD indicates that evaluation of TPD is challenging. An organization may consider the following when approaching the evaluation of any future TPD efforts:

- Currently, evaluation of teacher outcomes from TPD relies heavily on teacher self-reports of their experiences in TPD and their perceptions of what they learned, which may not provide reliable evidence of changes in practice. Alternative approaches, such as observations or student surveys, require clear definition of what change in practice looks like, and it may be possible to build in activities to understand change in practice over the course of a sustained TPD initiative. Activities could include things such as teacher reflections, activity logs, and insights from coaches.
- While learning through play is associated with the development of a wide range of cognitive, social, emotional, and creative skills, **it would be strategic to identify a subset of student outcomes as the focus and driver for a particular TPD initiative.**
- Many measures exist for a range of student outcomes and may be tailored to provide evidence of student outcomes for TPD. As noted earlier, it is critical that these student outcomes be aligned with the TPD and classroom practices, and that teachers understand these outcomes themselves.
- Any evaluation of teacher and/or student outcomes should be mindful of how much time it takes for change to occur and indicators to be evident. Reliable and valid evaluation of this work is likely a costly endeavor.





At a time when teachers in the United States are leaving the profession at an alarming rate and students are experiencing a range of learning challenges as a result of the COVID-19 pandemic, learning through play has the potential to re-invigorate teachers and transform classrooms. The findings in this report offer potential new directions for bringing about change, while also highlighting the need for more research on if and how TPD can support teachers in incorporating active, playful pedagogies in their classrooms.

**Effective TPD that provides teachers with the knowledge, skills, attitudes, and confidence to bring play into their classroom, while challenging, has never been more important.**



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