Developing an Observational Tool to Support Play-Based Teaching

M. Elizabeth Graue, Fujiuju Chang, Erica Ramberg, and YJ Kim

The authors contend that, although recent research—especially concerning the role of teachers—shows play to be critical for early childhood education, most kindergartens in the United States limit play because of accountability worries. And this is especially true for those kindergartens serving Black and Brown children. To support the development of rich play-based teaching, the authors developed an educational observation tool called the Educationally Productive Play Protocol (EP3), which they describe in relation to a pilot study in thirty preschool classrooms and which offers evidence that teachers who viewed themselves as facilitators of play had higher ratings than their management-oriented peers. **Key words**: Educationally Productive Play Protocol of play-based teaching; professional development for teachers; teaching and play; teacher observation tools

Introduction

Some researchers and early education practitioners seem ambivalent about play. A core developmental activity central to many early childhood programs, play—or the idea of it—is supported by most early educators (National Association for the Education of Young Children 2020), and many researchers view it as an essential learning tool for young children (Hedges 2014; Pyle and Danniels 2017; Weisberg et al. 2016; Zosh et al. 2018). Advocates argue that play promotes child development socially, mediating stress (Yogman et al. 2018), and that playful learning particularly supports the development of twenty-first–century skills (Hirsh-Pasek et al. 2020). They also contend that guided play produces larger measured learning outcomes than direct instruction or free play (Cavenaugh et al. 2017; Fisher et al. 2013; Han et al. 2010; Skene

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Contact M. Elizabeth Graue at beth.graue.wisc.edu

et al. 2022). For example, children evidenced larger gains in shape knowledge (Fisher et al. 2017; Schmitt et al. 2023) and improvements in sound knowledge (Cavenaugh 2017) in supported play contexts like games than they did in free play or directed learning.

Not everyone agrees, arguing that the primary goal of early childhood education must be learning that prepares children to succeed in school. Some see play, the focus of whole-child curricula, as too indirect to develop vital skills for school readiness (Jenkins and Duncan 2017). Critics advocate for a skills-based approach that empowers traditionally marginalized children (Delpit 1986). Further, content-specific math and literacy curricula are associated with more tested growth in math and reading scores than whole-child, play-based curricula. These outcomes affect marginalized children differently (Jenkins and Duncan 2017; Nguyen et al. 2018). In the name of increased student learning and equity in academic achievement, play-based teaching has almost disappeared in kindergarten and appears threatened in prekindergarten (Pre-K) and child care (Bassok et al. 2016; Brown et al. 2019; Miller and Almon 2009).

These trends seem to put play and learning in opposition. In some instances, adults are relegated to organizing materials that allow children to direct their play. In others, teachers drive more narrow activities designed with particular learning goals. Viewing this as a false dichotomy, a growing movement highlights opportunities for learning across a continuous spectrum of play (Zosh et al. 2018; Pyle and Danniels 2017). This continuum opens multiple roles for teachers and children for different goals and activities. The middle ground becomes a type of play that partners teachers and children, working at the intersection of child agency and teacher scaffolding.

To bridge the chasm between play and learning, we designed and implemented a project to support play-based teaching that describes attributes of classrooms engaged in play-based learning. Carefully analyzing the play literature promoting equity, we developed an observational tool that describes what we call educationally productive play, a tool which can be used as a guide for early childhood practice. The Educationally Productive Play Protocol (EP3) results from this work. In this article, we describe its relation to the literature and its conceptual foundation using the results of a pilot study in thirty preschool classrooms to address the research question: How does EP3 capture the qualities of play-based teaching? We offer this as proof that a multidimensional observational tool can describe elements of play-based teaching.

Literature Review

A Perfect Storm: Disappearance of Play and Research Promoting Guided Play

These robust debates about play coincided with an expanding academic focus on kindergarten and the subsequent push to remove play from early childhood programming (Bassok et al. 2016; Brown and Mowry 2017; Engel et al. 2021; Pyle et al. 2020). In its stead, schools developed a laser-like focus on early literacy and mathematics outcomes to keep children on track to read by third grade. For example, comparisons of the Early Childhood Longitudinal Study in 1998 and 2011 found that there was an increase in the amount of time devoted to literacy and math and a reduction in the amount of time allocated to play, arts-based instruction, and recess (Bassok et al. 2016). These changes were more extreme in low-income than in high-income schools (Engel et al. 2021). As new research linked play and learning by conceptualizing a play spectrum, it bumped against these policy-directed curricular shifts that lessened play's prevalence (Bubikova-Moan et al. 2019).

Recent research has demonstrated that Brown and Black children in under-resourced communities inequitably experienced this loss of play. They are often limited to teacher-directed instruction with fewer opportunities for play activities that involve choice and movement (Engel et al. 2021). Without rich play, children miss its joy and the opportunities it offers to practice social skills, and adults are more likely to perceive these children as off-task, less engaged in learning, and in need of discipline (Adair et al. 2018; Boonstra 2021). Furthermore, even when children of color are given space to play, their play is viewed more negatively than that of their white peers (Gilliam et al. 2016; Rosen 2017).

Standardizing the early childhood curriculum, thought necessary to increase outcomes, has reduced the capacity of teachers to respond to their students (Parks and Bridges-Rhoads 2012). Many early childhood educators assert that they have never seen play-based teaching and do not know how to facilitate it (Bubikova-Moan et al. 2019). Practitioners have told us that many expert play pedagogues have retired rather than continue to fight a narrowed curriculum. As a result, play pedagogy has not caught up with the growing research on the power of guided play (Jensen et al. 2019; Skene et al. 2022). Moreover, without an explicit definition of play-based teaching and learning, many teachers do not engage in intentional play with learning goals in mind (Fesseha and Pyle 2016). Researchers suggest that a need exists for professional development to

enrich teachers' knowledge of play-based pedagogy (Bubikova-Moan et al. 2019; Schmitt 2023; Yin et al. 2021). This is vital, Allee-Herndon and Killingsworth Roberts (2021) say, because: "Purposeful learning happens when teachers have an understanding of both content and play pedagogy to design learning spaces that are interactive, intentional, investigative, personalized to interests and needs, scaffolded to support discovery and connections to prior learning, and aligned to academic goals and standards" (56).

Coincident with the loss of play in many early childhood classrooms comes the development of research influenced by the science of learning. Recognizing the importance of teacher scaffolding in extending children's thinking, this work broadened our own thinking about play to include different combinations of teacher and child initiation and direction. Research supporting this shift has focused on the assessment of children's learning in play (Pyle et al. 2022). In addition, researchers have begun to focus specifically on the ways that teachers might support play-based learning. This work includes analyses of the formal and informal ways teachers assess their role in play through professional development (Schmitt 2023) and international play collaborations designed to be culturally responsive (Omoeva et al. 2024; Zosh et al. 2024; Wolf et al. 2024). For example, Teacher RePlay constitutes a formative assessment tool designed to support playful teaching practices (Zosh et al. 2024). Using RePlay, teachers identify learning goals for children, teacher facilitation type, and characteristics of playful experiences (such as actively engaging, meaningful, socially interactive, joyful, iterative) to assess their own practice. Although different from our EP3, RePlay shows the potential utility of tools for enhancing play-based teaching. Increasing and enhancing play-based pedagogy requires better articulation of its characteristics and guides to support playful practice. Developing an observation tool to support play-based teaching may seem anathema to high-quality early education. With the popular focus on spontaneity and child centeredness, assessing play could seem the best way to kill a joyful activity. That may be why, until recently, few tools describe play and are limited to particular play types (Germeroth et al. 2013). To support the development of skilled play pedagogues, a tool that guides rather than evaluates play-based teaching could greatly enhance available learning opportunities. These conditions prompted our project.

Perspectives

We leverage three frameworks to guide our work. Teaching Through Interactions (TTI) points to the importance of teacher-child interactions for engaging

children in learning and promoting development (Hamre et al. 2013). Rather than limiting attention to structural measures of quality like teacher education, class size, or school funding, TTI asserts that interactions between teachers and children are the driver for learning. In line with the work from the science of learning, TTI suggests an active role for teachers whose interactions with children include attention to practice's social, organizational, and instructional components.

In line with TTI, the Play Spectrum reflects the broadening conceptions of play beyond its traditional teacher stance of hands-off free play to include playful interactions in which teachers and children can initiate or direct activities (Fisher et al. 2013; Pyle and Danniels 2017; Zosh et al. 2018). In this spectrum, free play (created and shaped by children) lies at one end and playful instruction (produced and directed by teachers to achieve a learning goal) at the other. In between lies collaborative guided play (in which teachers or children initiate or direct play) and games (created by teachers to achieve a learning goal but directed by children). Our vision of a high-quality, play-based classroom includes activities across the play spectrum.

A third element guided our work. To counter the narrowing curriculum that reduces child autonomy and choice in the classroom, we promote a commitment to developing different types of child agency through various play types. Starting with the idea of who gets to play and how, a focus on equity and agency highlights the great power educators have when they extend the opportunity for play (Kinard et al. 2021). Conceptually embedding equity through agency helps reduce a persistent pedagogy gap among differently resourced groups. We align our work with Mariana Souto-Manning's (2017) framing of play as a social justice issue, and we hope the development of this tool might support more just play environments in early childhood classrooms: "If we are to unleash children's infinite potential, not only do we have the responsibility to position play as a right, we must also understand the agency children need to have during play. Their play will likely come to life in ways that are unfamiliar—and at times uncomfortable—to adults. . . . I posit that play allows children to rehearse and enact change by asking questions, developing community, and standing up for fairness, which will later be (re)named justice" (287).

We bring together attention to adult-child interactions (TTI), the spectrum of play, and a commitment to equity to articulate a construct we call educationally productive play (EPP): teacher-designed, child-centered activities and environments experienced by children as fun and semi-spontaneous to wholly

spontaneous. Teacher engagement is at the core of EPP. However, engagement is not limited to direct instruction. It includes careful design of play environments that children explore independently and direct interactions with children in guided play and games. EPP harnesses the joy of play with learning that either children or teachers can direct. A core aspect of EPP involves teacher responsiveness to children through their decisions about the degree of structure needed at a specific moment (Trawick-Smith and Dziurgot 2011). Like the construct of classroom quality, EPP directs attention to the classroom rather than individuals or particular activities. In one area, a teacher plays a game with children; elsewhere, a teaching assistant plays in the block area; and in other areas, children engage with each other and play materials. Focusing only on the lead teacher yields only a partial understanding of the rich learning opportunities afforded. This characterization proves vital in early education settings in which multiple activities occur, with the varying involvement of teachers.

EP3 uniquely combines the TTI framework, a broader view of playful teaching and learning through the Play Spectrum, and an explicit focus on equity. This allows EP3 to highlight the qualities of successful play-based classrooms in new ways, building on a strong scholarly foundation.

Developing EP3

Early childhood administrators in urban public Pre-K programs, when establishing priorities for their partnership with university researchers, voiced concerns about the quality of play-based teaching. They wanted evidence of rich play-based pedagogy in Pre-K and kindergarten for professional development, showing that these practices exist in local contexts. We analyzed videos that suggested teachers primarily managed play, rather than actively engaged in it, in contrast to the practices suggested by guided play. Although managing behavior is one critical aspect of teaching, it is more reactive than the intentional interactions promoted by TTI or the Play Spectrum and it often stands in the way of equity-oriented play-based teaching. Anecdotally, we observed that in-service and preservice teachers struggled with visualizing play-based teaching practices.

As our next step, we created a vocabulary for more engaged teaching. We had the videos but needed support for viewing them that reflected current pedagogical knowledge. This catalyst helped us conceptualize and develop EP3.

Until recently, the research community's attention to play has centered on play and children rather than play and teaching. Observation tools focused on capturing children's play types and development outcomes (see Yunus et al. 2024 for a review of such observational tools). Recent work outlining the play spectrum provided the conceptualization needed for shifting to play-based teaching.

While reviewing the literature on TTI, play-based teaching and child agency, we used what was essentially interpretive analysis, identifying themes to develop constructs for the tool. This involved a coding and memoing process during which we looked for categories, distinguishing characteristics, and alternative explanations. A critical decision held the learning context to be a facilitator of engagement in play. A foundational early childhood concept, the environment sets the stage and makes playful interactions possible in several ways.

Drawing on the recent literature about play-based teaching, we developed a multidimensional construct designed to support high-quality play and promote child agency and equity. We looked for constructs that contribute to rich play-based teaching and learning by analyzing literature reviews and single studies. Building on the traditional focus on rich classroom environments in early childhood education (Curtis and Carter 2015), the importance of classroom interactions, the play spectrum, and a commitment to support play access for all children, we identified three critical domains of high-quality play—Learning Context (LC), Teacher Engagement (TE), and Child Engagement (CE)—and elaborated subdomain dimensions and indicators for each. See figure 1 for a sampling of the research literature supporting each dimension. The domains are entangled rather than orthogonal and reflect how rich play comes out of rich environments, responsive teacher engagement, and opportunities for children to have agency in playful learning. Across these three domains, we describe ten dimensions and indicators that reflect a finer grain of detail. Figures 2 through 4 overview EP3's domains, dimensions, and indicators.

In the development process, we worked through a tension between a streamlined, simple-to-administer checklist and an observation guide that supports learning about the complexity of play-based teaching. We landed on EP3 as an observational tool for teachers and teacher educators to support the development formatively of playful teaching and learning. As a result, we focused on descriptions that educate and promote reflection rather than evaluate teacher practice.

EP3 includes multiple levels of support for its use. Descriptive materials at various levels of detail provide overviews of constructs, operationalizations for educator

Domain	Dimension	Logic
Learning Context	Materials	Singer et al. (2013) emphasize the importance of variety and accessibility of play materials.
		Doctoroff (2001) provides details on preparing play materials. It focuses on the variety of materials for a range of play types and being responsive for all domains of development. It also emphasizes that play materials should be culturally and developmentally reflective, "including diversity of abilities, as well as ethnic and cultural diversity" (107).
		Martinsen (2015) emphasizes the significance of play materials in kindergarten. When children enter a kindergarten classroom, what play material is available, where it is placed, and how it is organized would hinder or promote the conditions of play.
	Physical Environment	Doctoroff (2001) details preparing physical play environments for children's play, including arranging the classroom space and play environment. It emphasizes preparing play environment to adapt to all children's needs.
		Aiono et al. (2019) indicate that teachers can encourage curiosity and creativity through environmental design and materials. It also describes the importance of a well-organized space for materials storage.
		van Liempd et al. (2018) indicate that free space supports positive social interaction and movement, and a distinct and well-equipped environment encourages ranges of play.
		Clayton and Forton (2013) find that open-ended space with the flexibility of furniture and low dividers supports positive social interaction and movement. The well-organized classroom should also be clearly labeled.
		Bermudez et al. (2023) describe the importance of creating play environments that take up children's funds of knowledge by exploring a community project that resulted in co-designed play contexts with community members to teach STEM concepts.
	Routines	Aiono et al. (2019) suggest balancing the schedule for different types of activities across the school day. It also emphasizes the importance of shared expectations.
		Trawick-Smith and Dziurgot (2012) indicate children need long periods of playtime.
		Pianta et al. (2018) find the importance of efficient use of time and transitions with purpose.

Figure 1. Dimension Research Foundation

Domains	Dimension	Logic
Learning Context (continued)	Activities	Hedges (2014) suggests integrating children's funds of knowledge in play for children's content learning, connecting with children's lives.
		Pyle and Danniels (2017) describe a play continuum with different levels of teacher support.
		Pyle et al. (2017) include literature focusing on the authenticity of play activities, indicating that activities should relate to children's lived experiences and interests. It also included literature discussing play activities across various group sizes and content learning.
		Aiono et al. (2019) offer examples of social-emotional skill development through play, including problem solving, risk taking, turn taking, expressing feelings, etc. It also emphasizes that play activities should support a range of group sizes.
		Gunn et al. (2021) suggest developing a culturally responsive classroom to incorporate children's culture, home, values, and beliefs in play.
Teacher Engagement	Positivity	Hamre and Pianta (2005) found that in highly emotionally supportive classrooms (as rated in CLASS), children defined as at risk outperform their peers in less supportive classrooms.
		Pianta and Stuhlman (2004) find that teacher closeness, warmth, and open communication may promote children's independent exploration, lower behavioral problems, and better social skills.
	Responsivity	Devi et al. (2018) describe the lack of teacher engagement in children's play, resulting in an inability to be responsive to play interactions in a meaningful way.
		Goble et al. (2016) describe how time spent in teacher-managed contexts positively affected social and academic development. Even in child-managed activities, gains in various outcomes were related to teacher engagement.
		Schmitt et al. (2023) found that teacher sensitivity was associated with children's academic self-concept.
	Scaffolding	Chien et al. (2010) found that children with more time engaged in teacher-scaffolded activities had larger learning gains than in teacher-free activities. In addition, teacher engagement supported learning even in child-directed contexts.
		Fisher et al. (2013) found that children taught shapes in guided play conditions made greater gains than those taught in other conditions. Scaffolding engages children by increasing engagement and supporting sense making.
		Han et al. (2010) found that children in Head Start learned more in a vocabulary intervention when a play component was added.

Figure 1. Dimension Research Foundation (continued)

Domain	Dimension	Logic
Teacher Engagement (continued)	Scaffolding	Wolf et al. (2024) explore the PLAY observation tool and how "Support for Exploration" includes several elements of scaffolding learning.
		Schmitt et al. (2023) examine teacher instructional quality and its components, like scaffolding, associated with children's stability knowledge in block play.
Child Engagement	Participation	Van Oers and Duijkers (2013) find that through participation in play, children bring concepts into experience.
		Strasser et al. (2024) note that children are likelier to be engaged and on-task during highly playful activities.
	Agency	Kim and Saplan (2024) find that in playful, asset-based assessment approaches, children experience greater agency in their experience.
		Parker et al. (2022) highlight the centrality of children's agency to playful pedagogies. The learning experience through play aims to equip students with agency and confidence to guide their own learning.
	Sense of Belonging	In playful assessment, children experience a greater sense of belonging.
		Kinard et al. (2021) examine how teachers can disrupt anti-Black discourse through engaging children in play in playwork.
		Wainwright et al. (2020) find that when children think of tasks as play, they are more involved and had higher levels of well-being.

Figure 1. Dimension Research Foundation (continued)

learning and reflection, and elaborated explanations of both construct and levels of evidence for observation. The materials came from repeated cycles of watching videos, consulting the literature, honing descriptions, and eliciting feedback.

We used EP3's dimensions to describe the depth of the evidence for play-based teaching using a five-point format: low (1), midrange (2, 3, 4), and high (5). We do not assume that evidence is normally distributed among classrooms. Figure 5 is an example of dimension and indicator descriptions for use in the field, elaborating levels of evidence observed in a classroom. These descriptions support the idea that play-based teaching includes various elements that can be observed in classroom practice.

During tool development, we held a feedback session with practitioners that included discussions about the tool, its constructs and its potential uses, as well as a joint viewing of a video applying these to examples. These sessions centered early educators' perspectives on practice and were very important for sharpening EP3's language related to teacher reflection rather than evaluation.

Qualities of classrooms and activities that support educationally productive play. How well the classroom is planned and prepared with materials in a well-organized space. Routines and rules reflect shared expectations, good flow of play and play-adjacent activities, and positive social interactions. Supports various play activities and modalities, group sizes, and meaningful social, emotional, and academic content. Fosters teacher and child engagement in playful teaching and educationally productive learning.	
Dimension	**Descriptors**
Materials How materials support a range of play types. The materials are sufficient in number, attractive, accessible, age-appropriate, and culturally reflective. In addition, the materials promote independence and social use.	*Identity Affirming* Available materials include affirming representations of people, places, cultures, identities, and languages. Children see themselves, their families, and the world's cultural diversity reflected in the images, toys, manipulatives, and books around the room.
	Developmentally Responsive Materials support children's safe exploration and play by being a good fit for all domains of development. Range supports independent and group play.
	Sufficient and Accessible Children can easily access and use materials that are sufficient in number.
	Independence Materials support children's independent, social, and teacher guided play, fostering children's decision making, investment, and sense of efficacy.
Physical Environment How the physical space manages positive social interaction and movement in ways that support a range of play types, positive identity development, and learning.	*Well Organized* Classroom walls and spaces present information purposefully; they are not overly busy, messy, or stimulating. Materials and supplies have a clear place when not in use. Material and supply storage does not interfere with the classroom flow of movement.
	Manages Positive Social Interaction and Movement Allows various sized groups. Children can move easily and safely and teachers can see children easily from anywhere in the space. Furniture invites children's use and comfort; some can be moved with relative ease.

Figure 2. Learning Contexts

Physical Environment (continued)	*Encourages a Range of Play and Learning* Promotes different modes of play (gross, aesthetic, fine motor, math/spatial, construction, etc). Include images, text, and objects that promote children's curiosity, creativity, and more complex play.
Routines How rules and shared play-based practices support child independence, positive social interactions, and efficient time use	*Clear, Shared Expectations* Expectations promote children's engagement, positive relationships and sense of self and community membership. Can be explicit or implicit and are responsively consistent through affirming language and gestures. Consequences are learning opportunities and do not single out children, especially minoritized children, for exclusion.
	Maximize Learning Opportunities Schedule has sufficient time for children's play. Redirections support children's re-engagement. Transitions are efficient and include learning opportunities, foreshadowing activities, and verbal and non-verbal warnings. In cases of danger, adult intervention is prompt and effective.
	Promote Autonomy Routines appear predictable, practiced, and known to children. Children move, play, use materials, and transition between play activities with confidence and a sense of knowing what to do, where things go, and what is expected of them. Visual cues (posters) and gestures (hand signals) help remind children of expectations. Verbal redirections center children's choice and understanding.
Activities How learning context provides various playful activities that support a range of developmental learning opportunities that are connected to children's lives in authentic and affirming ways.	*Variety* Activities offer a range of play modalities, allowing for different levels of teacher or child-directedness. Both teachers and children initiate activities to varying degrees. Activities also support a range of group sizes determined by teachers and/or children.
	Content Allows for learning across multiple developmental domains, including health and physical development, social and emotional development, language development and communication, approaches to learning, cognition, and general knowledge.
Activities	*Relevance* Authentically connected to children's lives in affirming ways, reflecting anti-bias goals around identity, diversity, justice, and activism. Integrating children's funds of knowledge from their lived experiences and community and family worlds. Responsive to children's developmental needs and strengths across all domains.

Figure 2. Learning Contexts (continued)

In the accountability context that teachers often saw as surveillance, a focus on professional development and learning was critical to buy-in.

We met with an advisory group of teachers, ECE administrators, and play researchers to refine further constructs and structures and negotiate agreements about levels of evidence. This meeting provided deeper connections with the literature and a more robust representation in items. Finally, we met multiple times with our research-practice partnership group for their feedback on enhanc-

How teachers make opportunities to responsively engage with children to enrich learning. Interactions are contingent on children's and teachers' interests, goals, and needs. Includes sustained, purposeful interactions relevant to a child's activity and focused on scaffolding learning and development across all domains. Interactions are meaningfully positive and position children as intellectually and emotionally capable. These elements combine to foster child engagement and leverage opportunities for learning.

Dimension	Description
Positivity How the teacher engages with children authentically, respectfully, and with equity in mind.	*Authentic Interaction* Adults move to the child's level and maintain an approachable demeanor. Seek children's authentic interaction, resulting in multiple exchanges with children. They use inclusive, affirming language, to validate children's ideas and behaviors meaningfully.
	Respectful Disposition Adults demonstrate a belief in children's capacity to learn and engage deeply in activities. They use inclusive, affirming language. They consider children's perspectives and agency in their actions and words. They strive to give their full attention to children as they engage with them.
	Equity minded Adults' interactions affirm children's multiple identities and foster children's sense of being essential community members. Adults cultivate a culture of caring among students. They take time to disrupt biases they see and hear in children's play to reduce harm in the classroom.
Responsivity How teacher engagement is contingent on child activity and both flexible and intentional.	*Contingent to Activity* Adults vary engagement by children's activities and guidance needed. Ranges from more child-directed (free from specific teacher direction) to guided (teacher facilitates play toward a learning or developmental goal) to teacher-directed (teacher sets the parameters of the playful activity).
	Improvisational Adults use observation to guide when and how to engage with children's play, adjusting their practice to children's learning, development, and current activity needs. They draw on children's play focus, previous experiences, and known interests. Adults demonstrate a yes-and disposition, intentionality, and flexibility throughout their engagement.

Figure 3. Teacher Engagement

Scaffolding How interactions are mediated through communication strategies used to extend thinking, build understanding, and connect to prior knowledge and experiences	*Multi-model Communication* Adults communicate to scaffold learning and development through diverse strategies.
	Language Richness Adults support children's growth through rich language. They notice and name children's activities and make open-ended comments and suggestions to prompt more complex engagement and renewed focus. They provide explanations, new information, and vocabulary through multiple feedback loops. Adults also draw on shared experiences to contextualize and build on children's play activities
	Creates Opportunities for Children's Perspective and Engagement Adults draw on children's thinking by using open and closed questions and different facilitation strategies. They promote children's discussion with each other and with teachers who actively support children's social interactions.

Figure 3. Teacher Engagement (continued)

ing the utility of the tool in practice. Among these actor groups we received grounded support and critique that enhanced EP3's development. The draft improved with each input session.

Sample

We tested EP3 in a midwestern university town in thirty classrooms recruited through emails and phone calls. Structurally, the sample was rich. It included classrooms in a public Pre-K program, funded by the state and serving four-year-olds. Classrooms were housed in public elementary schools (n=9), private child care centers (n=11), and the federal Head Start program, which served children in under-resourced communities (n=4). In addition, we were hosted by child care centers (n=6) not affiliated with the public Pre-K program. Five of nine school-based Pre-K and all of the Head Start classrooms served low-income communities.

Seventy-eight teachers working with 384 children participated in the pilot study. There were between two and three teachers and an average of almost 13 children in each classroom. We cannot provide data on child demographics because

How children demonstrate meaningful involvement in educationally productive play. Displayed through active participation in activities offered or that children create on their own, through agency, and the nature of their social engagement. Learning contexts and teacher engagement are necessary facilitators of educationally productive play but are insufficient if children are not engaged. Likewise, children's engagement with the learning context produces opportunities for educationally productive play that can be enhanced through teacher engagement.

Dimension	Description
Participation How children participate productively, positively, and with a sustained focus; may involve peers or the teacher, it may occur in a solitary manner, or it may take the form of listening and observing	*Productive* Children's bodies and minds are engaged in play. Activities have an intentionality that generates a sense of accomplishment or satisfaction. If they play with others, there is a sense of shared and negotiated rules.
	Active Involvement Children are actively involved in play, shifting among roles, behaviors, and play modalities. Their bodies indicate involved engagement. Activities can be purely materials-focused.
	Focused Children participate in play with sustained attention and purpose. They are committed to their play activities (roles, materials, goals, motivations) and are not easily distracted. However, movement between activities, roles, etc. is accepted.
Agency How children have choice in most play activities, including play type, nature of engagement with peers, and with the teacher	*Choices* Children have a range of choices, which foster deeper exploration and learning and can increase motivation. No children are excluded from choice because of perceived abilities, especially minoritized children and children with special needs.
	Autonomy Children's decision-making is vital in how play unfolds. Children influence what they do and learn during play activities, and their initiative is respected.
Sense of Belonging How children have positive social interactions with peers and teachers in play; these interactions can enrich play, build relationships, and support all development domains. At the same time, solitary play is valued by the teacher and children.	*Enriches Relationships* Children engage in sustained interactions with their peers and/or adults during play. These interactions enrich play activities and relationships. Children engage in problem-solving, role-taking, exchanging new ideas, and negotiating play dynamics. Their body language indicates connection and interest in these interactions.
	Includes All Children and Their Preferences All children have access to social interactions in the classroom with other children and adults. Children's modes of interacting (silent observer, parallel play, vocal partner, etc.) and solitary play preferences are welcomed. No child is excluded from social interaction on account of perceived abilities or other characteristics, especially minoritized children and children with special needs.
	Supports Learning Children's interactions with each other and adults foster more complex play and learning, contributing to their persistence and motivation in play.

Figure 4. Child Engagement

MATERIALS				
Indicator	**Key Descriptors**	**Low**	**Middle**	**High**
Identity Affirming	• Reflect diversity of children, families, community • Feature multiple languages • Difference affirming	Monocultural, reflecting a presumed norm that does not allow children to see themselves, families and community.	Some diversity in materials, but the majority reflects a prototypical image. Children variably see themselves, families, and their community	Affirming representations of people, places, cultures, identities and languages. Children see themselves, their families, and the community in images, toys, manipulatives, and books around the room.
Developmentally Responsive	• Hands-on • Safe • Support a variety of social interactions • Support practice and growth across developmental domains	Unsafe obstacles for children to explore and play. They are overly complex or simple. Lacks variety and limits types of play and social interaction	Some promote safe exploration and play; overly complex or simple. Limited to play types and social interaction.	Supports safe exploration and play. Responsive to a range of development and facilitates a range of group sizes.
Sufficient & accessible	• Available for child use • Organized • Multiple • Inclusive	Insufficient materials accessible for all children and poorly organized.	Sufficient materials for some children to use easily and they are somewhat organized and accessible.	Sufficient materials allowing all children access and use them easily.
Independence promoting	• Range of teacher support • Promote child agency	Does not support children's independence or teacher limits independent use and exploration. Does not foster children's decision-making, investment, and sense of efficacy in play.	Varying support for children's independence or teacher sometimes unnecessarily limits independent use and exploration. Varyingly supports children's decision-making, investment, and sense of efficacy in play.	Supports and allows for independent or social play and play with teacher guidance. Fosters children's decision-making, investment, and sense of efficacy in play.

Figure 5. Example: Level Description

we did not ask about specific demographic counts. Almost 60 percent of teachers were white; 20 percent were unidentified, and the remaining teachers were Asian, Black, Hispanic, or mixed. Figure 6 provides an overview of participating classes.

Field Test

The field test began in spring 2022, with four rounds, ending in summer 2023. We refined the tool through research team discussions and observers' feedback to reflect the literature and our experiences using the tool in classrooms.

	Teacher	Children
Average/Class	2.6	12.8
Range/Class	1–6	6–20
Total	78	384

Figure 6. Overview of Participants

	Number of Classrooms	Number of Observation Cycles
School based	9	19
Center based	17	37
Head Start	4	8
Total	30	64

Figure 7. Numbers of Classroom and Observation by School Type

The field test focused on free play typically lasting sixty minutes when children choose among areas and activities. We established a preliminary observation structure of thirty-minute units, with twenty minutes of observation and ten minutes of reflection on evidence and rating. The number of observation cycles depended on the time allotted to play. We conducted sixty-four observation cycles with an average of two observation cycles per classroom. Figure 7 presents information about observation cycles by school type. We experimented with the length of observation, shortening it to fifteen minutes of observation and five minutes of rating. We continued to weigh the costs and benefits of longer and shorter observations and rating.

In addition, we added a three-question interview for lead teachers after the observation to understand their ideas about play. These quick conversations were not recorded, did not require the teacher to leave the classroom, and were summarized immediately by the observer. Teachers emailed responses when there was insufficient time for the conversation.

	Mean	Median	Range	SD
Learning Context	4.18	4	1–5	0.61
Materials	4.27	4.5	3–5	0.82
Physical Environment	4.33	5	2–5	0.91
Routines	4.13	4	1–5	0.93
Activities	4.00	4	2–5	0.75
Teacher Engagement	3.67	4	1–5	0.94
Positivity	3.44	3	1–5	1.11
Responsivity	3.77	4	2–5	0.83
Scaffolding	3.44	3	1–5	1.19
Child Engagement	4.34	4	1–5	0.59
Participation	4.41	5	3–5	0.73
Agency	4.56	5	2–5	0.97
Sense of Belonging	4.06	4	1–5	0.89

Figure 8. Descriptive Analysis of Domain and Dimension Ratings

Data Analysis

We approached analysis interpretively, exploring how EP3 documented the qualities of play in preschool classrooms via patterns we identified in the data. Reflecting qualitative approaches to social research, our analysis is hyperlocal rather than generalized to a broader population (Babones 2016). It has a decidedly noncausal intent. Instead, we focus on building a case for conceptualizing play-based teaching through descriptive analyses of rating frequencies and averages by group. We used an inductive analysis of themes (Saldaña 2021) for post-observation teacher responses in all domains. In addition, we read the responses deductively using codes derived from EP3, which reflected the literature. We studied the teacher responses using descriptive analysis, especially the mean ratings of each domain by classroom, to generate themes.

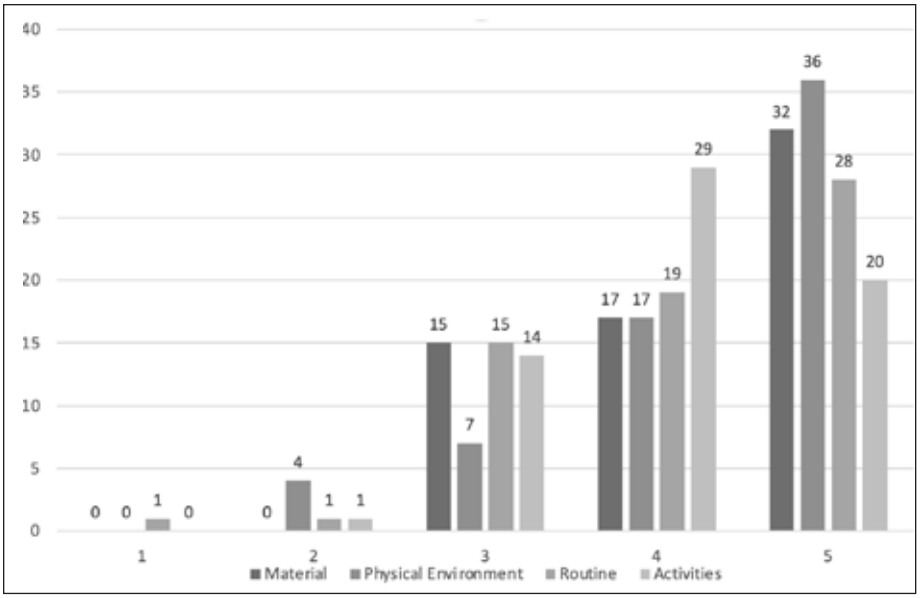

Figure 9. Distribution of Learning Context Ratings

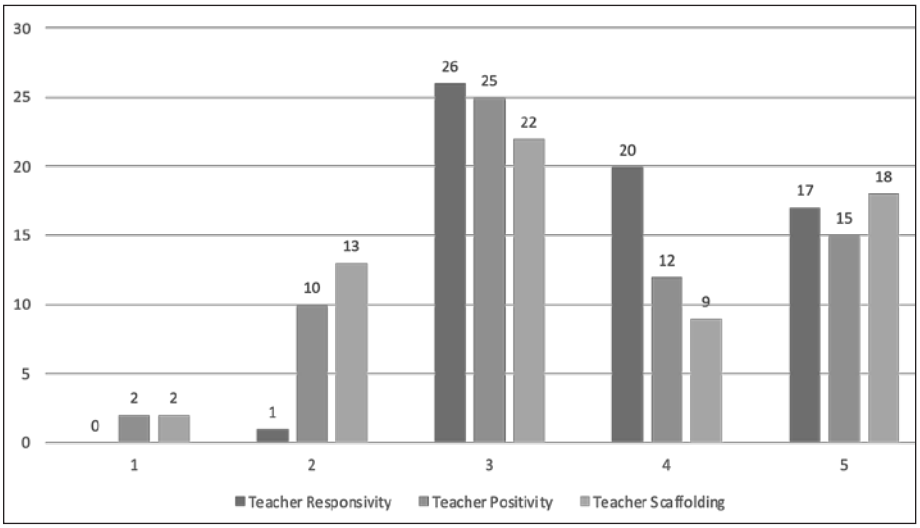

Figure 10. Distribution of Teacher Engagement Ratings

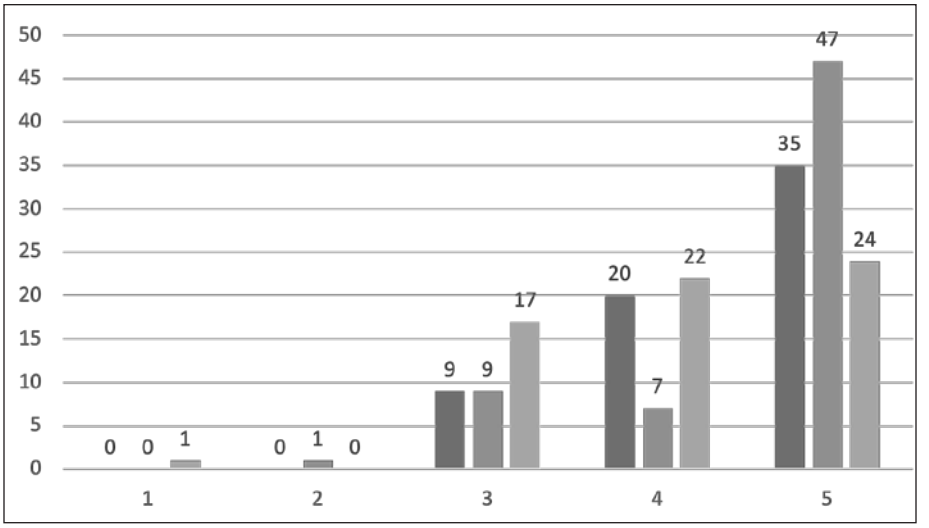

Figure 11. Distribution of Child Engagement Ratings

Results

Descriptive Analysis of Domain Ratings

We were interested in how the dimensions and domains functioned in observations, so we looked at their central tendency and distribution measures. Figure 8 provides an overview comparing domains. Child Engagement had the highest average rating, 4.34, with the smallest standard deviation (SD) of .59), indicating that, on average, it was the most stable domain. Learning Context had a slightly lower average score, 4.18, with a similar SD of .61. Finally, the domain Teacher Engagement, representing the things teachers do during play, had the lowest average rating, 3.67, and the largest SD of .94. This indicates that the construct of teacher engagement reflects lower levels of evidence and more variability than the other two domains.

Distributions of Dimension Ratings

Another way to describe field test data was to explore the dimension ratings. Figures 9 through 11 present histograms of the frequency of different ratings by domain. Like the domain averages, 5 was the most popular rating across

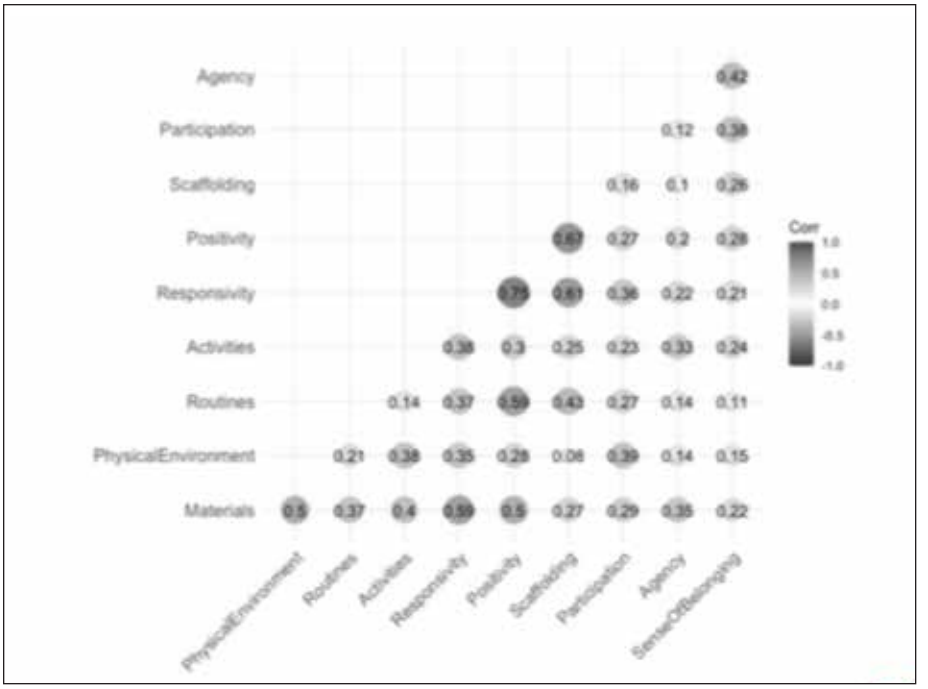

Figure12. Interdimensional Correlations

dimensions for Child Engagement. Within the Learning Context, 5 was the most frequent rating for all dimensions, but Activities, where 4 was the most common. All three dimensions of Teacher Engagement were most often rated 3.

The sample classrooms demonstrated positive evidence of playful learning contexts and engaged children. Materials and Physical Environment, which might be characterized as the things available in the room, were similar in rating above the domain mean. Routines and Activities, representing practices, had lower ratings; however, teacher involvement and facilitation were comparatively lower than in other domains, indicating that interactions between teacher and child occurred less frequently or were less rich. This is in line with the idea that teachers are unsure of how to engage with children in play and with the TTI's model that points to teachers' instructional support as an area needing improvement.

Relations Among Dimensions

To assess the coherence of the constructs in our domains, we looked at their

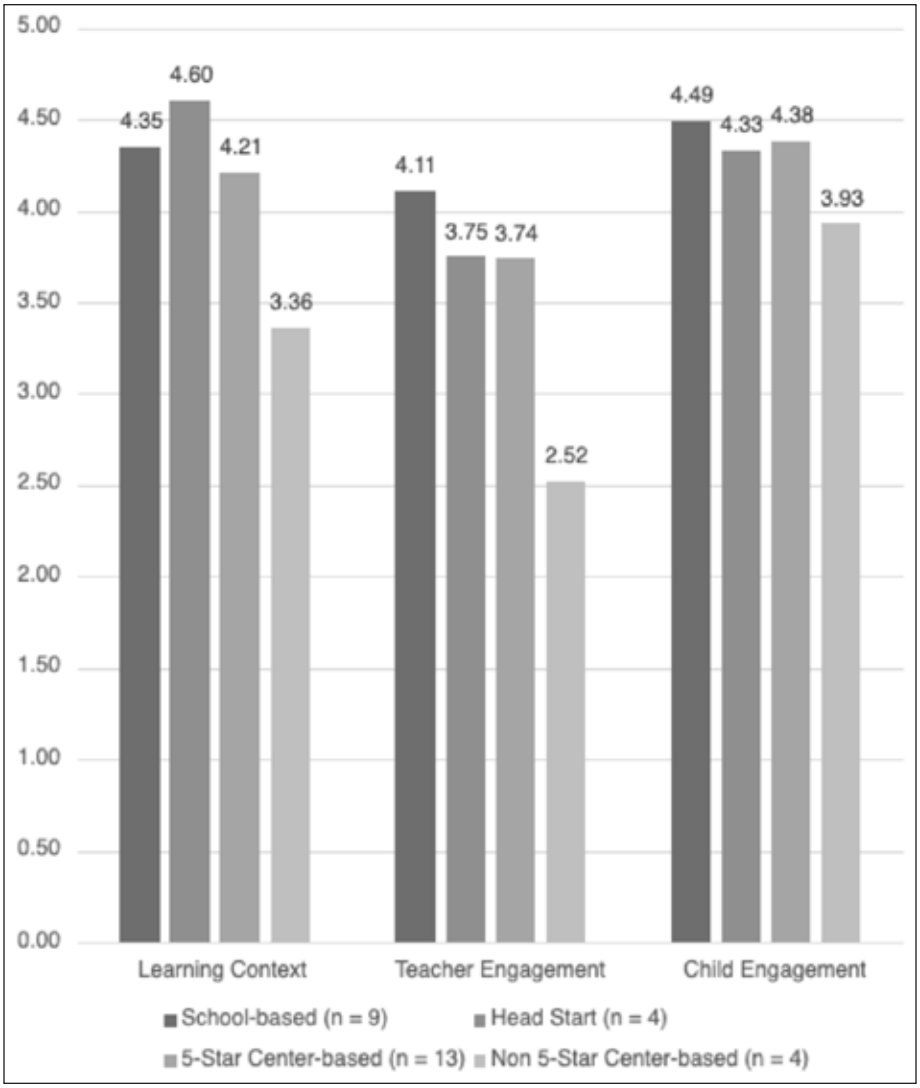

Figure 13. Domain Ratings by School Type

interdimensional correlations. Figure 12 shows this analysis. Though all the correlations are at least weakly positive, the dimensions within Teacher Engagement—Positivity, Responsivity, and Scaffolding—were most strongly related, as shown by the darkest colored squares in the matrix. This might signify a robust construct, with the dimensions related, or it may suggest that scores

for that domain are more varied than the others. The latter is corroborated by figure 8, which shows that Teacher Engagement and its domains had the highest standard deviation.

Domain Rating Patterns for School-Based, Center-Based, and Head Start Classrooms

Many assert that there are essential quality differences between public Pre-K, child care and Head Start programs, in which school-based programs are thought to be better than center based (Gormley et al. 2010; Gordon et al. 2013; Philips et al. 2017). We were interested in whether this might appear in EP3 ratings. Figure 13 presents rating frequencies by school type. We disaggregated child care centers by their own states' quality rating improvement scores (QRIS) to assess the relationship between overall center quality and individual classroom ratings on EP3. To do this, we compared centers with the highest quality rating (five stars) and those with centers rated less than 5 stars. This field test showed more similarities than differences across programs, with slightly higher ratings for teacher engagement in public Pre-K and learning context in Head Start classrooms. Analysis in this iteration did not provide evidence of any one school type engaging in more highly rated EPP, other than lower QRIS-rated centers.

Postobservation Teacher Responses and Observation Evidence

Interested in how teachers thought about play in their classroom, we had brief conversations with teachers postobservation. Figure 14 presents a sample of their responses. These quick conversations provided background information and a sense of a teacher's ideas about play-based practice. Most of the teacher responses aligned with the corresponding ratings in particular domains and dimensions. For example, when teachers described themselves as observers, engagement ratings were lower (3) than if they identified as facilitators providing guidance and encouragement. The opposite was true for teachers who identified themselves as facilitators; their engagement ratings were higher. When discussing children's activities and engagement, one-third of the lead teachers, or ten of them, mentioned that children had ample opportunities to make choices. These classrooms received a rating of 4 or higher in Child Agency.

Not all the responses from teachers aligned with the observational evidence. One teacher viewed her role as facilitating children's play, yet her classroom received a scaffolding rating of 2 based on a lack of communication between children and teachers. In Classroom U, shown in figure 14, there was a consider-

Classroom	Learning Context	Representative quote	Teacher Engagement
A	4.88	"What you saw during our play today was a bridge and extension of a study we had just completed about apples and pumpkins. Our current setup of a grocery store had previously been a farmer's market, where the children 'sold' apples, pumpkins, squash, and apple pies. We had been on a field trip to the apple orchard and pumpkin patch in October. So much of our learning centered on activities to accompany that. We are now entering into a study on things we see in our neighborhoods. We will be learning about signs in our community, our houses, and stores, and then adding materials to become construction workers as we design our own neighborhoods with the blocks and other objects. You might have seen some of this play starting today when two girls were making a 'Closed' sign for the broken cash register, and others were building with blocks."	4.88
L	4.38	The teacher's philosophy is to observe play and provide support when needed; for example, the teacher directs play when children don't know the rules. Teachers build the system to teach problem solving. They can read books, but only three books. The teacher doesn't lead the play (child agency is 5 and 4). Children always had choices in the past. They would clean up at the very end and found it difficult. So recently, they have tried a routine where they clean up when they leave the center.	4.33
D	3.38	Teachers spend a long time working on child independence (Child participation is 3.5; child agency is 1 and 4; child belonging is 3.5). Two children have IEPs, and some children receive speech and language services. The teacher tries to provide less so that children can create more. From the conversation, the researcher noticed that though the teacher was not involved in play or checking with children during play, she knew what they did.	3.5
U	4.5	The teacher says he balances between playing with children and supervising them. He encourages children to build things and have imaginative play. During playtime, children have freedom, and they [the teachers] just make sure no one gets hurt and no mess.	2.33

Figure 14. Representative Quotes from Post-Observation Conversation

able difference in ratings between Learning Context and Teacher Engagement. Though the Learning Context was rich and scored 4.5, the teacher's response was split between playing with and supervising the children. The supervision component was reflected in a rating of 2.3 for Teacher Engagement. For one group, facilitation was limited to observation and staying out of the way. For others, facilitation was more like guided play. These disconnects between teachers' responses and ratings could indicate perceptions of their roles in facilitating children's play or the types of learning opportunities they could leverage in children's play through their responsive engagement.

Discussion

In this article, we describe the development and field testing of an observation tool for play-based classrooms. The tool is designed to show the complexity of play-based teaching and support reflection for professional development. The Educationally Productive Play Protocol (EP3) reflects research on teacher-child interaction, play-based learning, and our commitment to ensuring that all children can play in school. Our small field test provides a window into its utility.

Through an iterative design process, we developed EP3 to reflect the current scholarship about play through feedback from early childhood teachers, administrators, and play researchers. Our attention to the classroom, rather than to the teacher or children, focuses on simultaneously occurring activities, allowing us to include child-directed play, teacher-supported or teacher-directed play, and collaboration between teachers and children. Over the field-testing period, we refined constructs and returned to the field, producing a tool that we think has considerable potential to inform practice and, we hope, research.

What kind of evidence would show this potential? As a result of our field test, we are hopeful that EP3 can be a valuable educational tool to describe the characteristics of play-based classrooms. The unique combination of the TTI framework, spectrum of play, and equity focus within EP3 highlights effective, fun, and necessary considerations for the early childhood learning context, teachers' engagement, and child engagement. Our field test results align with current research on classroom quality (Pianta et al. 2020), finding that instructional support lags behind emotional support and classroom organization. Further, it mirrors research that indicates early childhood teachers' use of purposeful

and responsive teacher engagement in free play remains an area for growth (Aras 2016; Thomas, et al. 2019).

We recognize the limitations of our project in terms of the broader application of these results. By design, the scale of this pilot study was small. As a first field test, it is exploratory and provides valuable information for further development. Our sample of thirty classrooms was systematic but relied on the willingness of directors to respond to our email queries and agree to participate. It might, therefore, be described as a group of the willing. The sample groups are uneven in size, making comparisons interesting. Our three-question walking interviews were designed to minimize classroom distraction, but they also minimized the opportunities for in-depth conversation. Some might consider the interpretive analysis weaker than a more extensive inferential study; we suggest follow-on research for this tool in development.

Our results push toward new explorations of play-based teaching and further tool refinements to reflect better the construct of EPP. Ratings pointed to teacher engagement as an area for productive development to increase the responsivity needed to make the most of play. We rated most classrooms high in child agency if we saw several choices offered. The field test ratings have prompted us to wonder about the impact of how choices are presented to children and whether children have full agency if they are allowed only a limited number of choices. We have considered how EP3 ratings might shift across learning formats, revealing different roles for the environment, teachers, and children between playful whole group activity and free play. We continue to explore EP3's capacity to see and rate indicators of an equity-focused, play-based classroom.

We see this project as the first step in creating a robust argument for EP3's use to enrich the quality of play-based teaching. The process should be iterative to draw on more sites and more complex data collection and analysis. Video studies could pair recorded evidence of practice with fine tuning the tool and training observers. At that point, attention to the reliability of ratings among researchers and practitioners could be the next step for those interested in more traditional forms of validity. However, there is much to do before that point. A more thorough development of materials to support professional development could enhance EP3's use to support teacher (and administrator) understanding of play-based teaching. We hope scholars will join in on this process. We see this article as just a beginning.

EP3 creates an opportunity to take a more nuanced view of play-based class-

rooms and the new possibilities for supporting teachers' play-based practice. We have piloted it in early childhood teacher education courses, assisting future teachers in identifying features of play-based early childhood classrooms using EP3 and videos. EP3 has much promise to support a more robust vocabulary around play-based teaching, giving teachers more resources to reflect on and enrich their practice, and to bridge the play-learning divide. It provides a rich context to explore the learning opportunities available in play and helps teachers identify disconnects between their self-described role in play and those reflected in the ratings. To support administrator understanding of play-based pedagogy, particularly important with the expansion of public Pre-K and the narrowing of the kindergarten curriculum, EP3 could be a useful tool. Though not a short walk-through tool used by many administrators, it could promote important conversations about play-based teaching and learning. We are excited to hear how those conversations go.

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