

Article

Observation of Student and Teacher Behaviors during a Preliminary Active Playful Learning Intervention in Kindergarten Classrooms

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Abstract: This study describes the implementation and effectiveness of an instructional coaching program for kindergarten teachers in the State of New Hampshire that was implemented in response to the State's play-based kindergarten mandate. Coaching was provided to 20 teachers from across the State. It focused on guided play, principles of how children learn, and the breadth of skills needed to achieve in the classroom and beyond. A novel adaptation of a classroom observation protocol measured classroom-, teacher-, and student-level behaviors predicted to change with coaching. Classroom-level results revealed a significant decrease in teacher-led direct instruction with a significant shift towards playful instruction, a possible precursor to guided play. Teachers did not change how students were organized in the classroom to promote this instruction, nor did they individually provide more inferential instruction or change their affect with this pedagogical shift. Yet, changes in student behaviors aligned with the coaching program. Students became more engaged with their learning, more active in their use of learning tools, and more communicative. These results offer valuable insights on the initial impacts of an instructional coaching program focused on guided play, how children learn, and what children learn. This study presents a feasible and effective model for professional development on play-based learning that is rooted in the science of learning and measurable in the classroom.

Keywords: guided play; playful learning; instructional coaching; science of learning; education reform



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1. Introduction

Early childhood education (ECE) is at an international inflection point. Prior research describes widespread “schoolification”, the implementation of developmentally inappropriate, conventional academic instruction traditionally reserved for later grades with younger students [1,2]. This pedagogical trend is documented across Western nations, including in the United States (U.S.), England, Denmark, Iceland, Australia, and New Zealand [3,4]. Yet, the Organization for Economic Cooperation and Development (OECD) cautions education systems against this approach [5]. Data show that not only has a narrow focus on reading and math achievement in education failed to produce desired outcomes for all students [6,7], but that students thrive in more holistic instruction that is attentive to the whole child and the contexts in which they live and learn [8–10]. In fact, a recent report from the United Nations Educational, Scientific, and Cultural Organization’s (UNESCO) Happy Schools Initiative reviewed the many benefits offered by an instructional approach that endorses students achieving a breadth of skills through more joyful learning [11].

Despite the prevalence of “schoolification” in U.S. kindergartens since the 2002 passage of *No Child Left Behind* [12], an alternative trend in education policy is emerging. New Hampshire, Connecticut, and Oklahoma recently passed state laws to enable and even mandate play-based learning in ECE [13].

This paper focuses on a university collaboration with the New Hampshire Department of Education that emerged following the 2018 amendment of that state’s law (RSA 193-E:2-a) to *mandate* play-based kindergarten [14]. The law established that “...educators shall create a learning environment that facilitates high-quality, child-directed experiences based upon early childhood best teaching practices and play-based learning that comprise movement, creative expression, exploration, socialization, and music.”

The partnership resulted in the creation of an instructional coaching program for kindergarten teachers across New Hampshire focused on evidence-informed play-based learning. It was a direct response to the mandate and designed to study and support implementation of best practices rooted in the science of how children learn [9]. This paper offers the latest results of that collaboration.

1.1. Play-Based Learning as an Evidence-Based Pedagogy: A Focus on Guided Play

The benefits of play-based learning for young learners are well established in the education and science of learning literature [15–17]. Foundational studies broadly demonstrated the effectiveness of child-centered ECE pedagogy over didactic instruction, especially to promote students’ socio-emotional skills. For example, Stipek et al. found that preschool and kindergarten students from underserved and middle-class areas who participated in child-centered programs were more confident than their peers, who received didactic instruction from their teacher, and more likely to take on a more challenging task. Students in child-centered programs also showed greater pride in their work. The students did not differ in their performance on a numeracy task and the students from the didactic programs exhibited greater basic literacy skills [18]; also see [19]. However, Han et al. later found that play generated greater growth in underserved preschool students’ vocabulary skills than direct instruction alone [20]; also see [21].

Our field has gone beyond unrestricted free play to identify the specific educational effectiveness of guided play, which was initially defined by Weisberg et al. in 2013. Guided play balances adult facilitation of an educational activity with student agency and discovery in pursuit of a learning goal [22]. Adults support students’ learning during guided play by either setting up the learning environment (e.g., designing an interactive museum exhibit that allows children to explore while pursuing a learning goal), or enabling students to engage in deeper learning through open-ended questions or prompts, such as “What do you think would happen if...?” [23]. The particular benefits of guided play for students’ academic outcomes are clear. A meta-analysis by Skene et al. found that guided play was more effective than direct instruction at promoting young children’s early math skills, knowledge of shapes, and executive function (in terms of their ability to switch between tasks). Additionally, guided play supported children’s spatial vocabulary more than free play [17]; also see [24]. Individual studies further indicate how guided play supports students’ early literacy [20,21,25,26], math [27], science [28], and executive function [29]; also see [30,31]. Extensive research by Lillard et al. demonstrated the positive effects of guided play in the classroom, as measured through the academic and socio-emotional skills of Montessori preschool students [32–34].

Evidence further suggests that teachers and students alike could benefit from the implementation of student-centered, guided play over direct instruction, particularly if the experience of facilitating guided play boosts teacher enthusiasm in the classroom. Student motivation, engagement, and joy are all associated with teacher enthusiasm [35]. This may be explained by the structure and support that teachers are more likely to provide their students when they experience enthusiasm themselves [36].

The concept of guided play changed the entire dynamic around play and learning, enabling students to achieve clear learning goals through a playful learning perspective.

Zosh et al. argued that play is now considered along a spectrum, from passive, direct instruction that is both initiated and led by an adult to child-initiated and child-led free play [31,37]. Pyle and Danniels offered a similar framework [38].

Playful Learning Principles as Key Characteristics of Guided Play

Research suggests that the educational effectiveness of guided play is attributable to its incorporation of a suite of principles that are common to how children learn and how children play [23,31,37,39]. These are the playful learning principles: namely, playful learning is *active* rather than passive, *engaging* not distracting to students, *meaningful* with opportunities for students to connect knowledge and skills gained inside and outside the classroom, *socially interactive* rather than independent with opportunities for collaboration with peers and adults, *iterative* with an emphasis on trial-and-error and generating and testing hypotheses, and *joyful* instead of dull [9,31,37,40]. Importantly, for optimal learning, there must also be a clear learning goal. However, these principles are intentionally broad, enabling their use across curricula and with a wide array of students across cultures and grade levels. Although the specific learning goals and curricula these principles are used to advance may change over time and across contexts, their value to education remains consistent.

1.2. The 6 Cs: Establishing the Breadth of Skills Students Need to Learn

Complementing the characteristics of playful learning, students also need to master a breadth of skills to effectively achieve their goals in the classroom and beyond [40–42]. There is building momentum for competency-based education that advances a suite of skills [43–45]. Golinkoff and Hirsh-Pasek identified one set of evidence-based, measurable, and malleable skills termed the 6 Cs: *Collaboration, communication, content, critical thinking, creative innovation, and confidence* [41]. Blinkoff et al. and Hirsh-Pasek et al. provide reviews of the 6 Cs and discuss their promotion through guided play [9,30,40]. To date, direct evidence linking playful learning to a breadth of skills beyond content is limited. Observational data may give us a glimpse not only into implementation of guided play, but also changes in classroom practices that are reflective of the 6 Cs.

1.3. Preliminary Evidence for the Feasibility of Embedded Coaching on Guided Play with Kindergarten Teachers

The study presented in this paper begins to strengthen a foundation for how teachers might implement guided play in the classroom to enable particular behaviors in their students that theoretically support development of the students' 6 Cs. Importantly, it is still an early step to examine the feasibility of this pedagogical approach for teachers and its impacts on students. It builds on an initial study that was conducted during the 2019–20 school year and summarized in Hirsh-Pasek et al. [9]. This first iteration of the program addressed guided play, the playful learning principles, and to a lesser degree, the 6 Cs using an overall intervention design that was informed by literature on professional development for teachers. It was an intensive, sustained professional development program that offered teachers six months of instructional coaching on guided play, the playful learning principles, and the 6 Cs using goals that aligned with the teachers' own practices. Coaches offered resources to support these pedagogical aims and enabled teachers to learn from each other in professional learning communities [9].

The process introduced in the prior coaching program prioritized a strong coach-teacher relationship centered on each teacher's professional development goals related to guided play. The goal-setting process was highly collaborative. Each coach then observed their teacher's practices focused on their mutually recognized goal. Lastly, the coach offered feedback to their teacher during post-observation debriefing meetings. Coaching was supplemented with a full-day workshop to introduce the concept of guided play and the playful learning principles [9].

Mixed-method results from the prior study indicated that the teachers appreciated the professional development that their coaches facilitated. The coaching program also achieved its aim of positively influencing teachers' opinions related to guided play. Teachers were significantly more likely to identify their classroom as "play-based" after coaching, relative to the start of the school year before the intervention began. They also came to see play-based learning as significantly more important, practical, and comfortable from pre- to post-coaching. Teacher reports of active learning and the promotion of student agency in the classroom were consistent with the playful learning principles. Teachers retrospectively reported significant growth across their students' 6 Cs skills [9].

1.4. The Current Study

The prior study, summarized in Hirsh-Pasek et al. [9], demonstrated the feasibility of an instructional coaching program implemented through a research-practice partnership in response to changing education policy, as well as its initial benefits for teachers and students alike. Yet, it faced several limitations. Coaching visits were every three-to-four weeks, raising the question of whether more frequent coaching would be still more effective. More importantly, all data were collected via teacher surveys, presenting the possibility of response bias.

The current study addressed these limitations. Coaching was more frequent, with visits every two-to-three weeks, and it included a novel emphasis on the 6 Cs. Teachers were encouraged to identify the skills in class. The introduction of neutral, third-party observations marked a novel methodological advance in the current study. Observational variables reflected student and teacher behaviors that were consistent with guided play, the playful learning principles, and the 6 Cs [31,37,40].

Hypotheses

This study used within-subject classroom observations based on a well-established observational tool called the *Child Observation Protocol* (COP) and *Teacher Observation Protocol* (TOP) to investigate three different sets of hypotheses at the classroom, teacher, and student levels over the course of the instructional coaching program [46,47]. At the classroom level, we hypothesized that teachers would increasingly implement activities coded as guided play with decreased use of direct instruction. Additionally, teachers would rely on student-led groupings rather than whole group instruction or individual student work. At the teacher level, greater instructional quality and more positive teacher tone were expected. At the student level, we hypothesized that active, engaged learning consistent with guided play and the 6 Cs would occur. We specifically predicted higher levels of student involvement in classroom activities and greater interaction between students and their peers.

2. Materials and Methods

2.1. Participants

Twenty kindergarten teachers were recruited from across the State of New Hampshire to receive instructional coaching in the 2021–2022 cohort of the intervention. Participating teachers self-selected into the study, although no teachers from prior program cohorts could enroll and priority enrollment was granted to schools with greater free and reduced-price lunch rates.

The analytic sample consisted of 19 intervention teachers. One intervention teacher resigned from teaching during the study. These teachers all identified as White and female with 16 years of average teaching experience (SD = 8.86, Min. = 3 years, Max. = 34 years) and an average of 11 years of experience teaching kindergarten (SD = 8.90, Min. = <1 year, Max. = 34 years). Additionally, 68% of these teachers held a Master's degree. The sample was matched for teacher demographics and educational credentials at the state level. As of 2020–2021, 98% of New Hampshire's teachers were White [48]. Additionally, 64% held at

least a Master’s degree in 2021–2022 [49]. Fewer than 14% of elementary school teachers in New Hampshire were male in 2022 [50].

Although students did not participate directly in this study, the average class size was 15 students ($SD = 2.97$), as reported in a teacher survey. Students in these classes were, on average, 34% female ($SD = 20.18$), 5% English learners ($SD = 11.12$), 14% recipients of special education accommodations ($SD = 9.41$), 83% White ($SD = 24.96$), 5% Asian ($SD = 10.79$), 4% Latinx ($SD = 5.60$), and 3% Black ($SD = 5.28$). These student characteristics were matched to state average rates reported by the New Hampshire Department of Education for the 2021–22 school year. Free and reduced-price lunch (FRPL) eligibility was not a valid measure of student socio-economic status during the 2021–22 school year, since many teachers reported that free lunch was universally provided due to COVID-19.

2.2. Instructional Coaching Approach

The 2021–22 iteration of the coaching program generally replicated a prior implementation [9]. Individualized embedded coaching on guided play and playful learning principles, though with greater emphasis on the 6 Cs, occurred between August 2021 and February 2022. Classroom visits between teachers and their coaches occurred every 2–3 weeks over six months between September 2021 and February 2022. Teachers were encouraged to incorporate 75 min of guided play into each school day, including time to instructionally scaffold the play (e.g., explain the learning goal and set limited parameters for student agency) and for students to engage in post-play reflections. Data collection occurred before, during, and after the six-month coaching period (Table 1). All study protocols were approved by the University of New Hampshire Institutional Review Board.

Table 1. Implementation timeline for the 2021–22 coaching program.

Time Period	Key Events
August 2021	- Pre-coaching survey administered to intervention teachers - Introductory workshop with intervention teachers, coaches, and researchers
September 2021	Coaching visits begin
October 2021	- Initial classroom observations of intervention teachers using the adapted <i>Child Observation Protocol</i> and <i>Teacher Observation Protocol</i> - Pre-coaching survey of students’ 6 Cs administered to intervention teachers
November 2021	Second “check-in” workshop with intervention teachers and coaches
February 2022	Coaching visits end
April 2022	Year-end classroom observations of intervention and control teachers using the adapted <i>Child Observation Protocol</i> and <i>Teacher Observation Protocol</i>
May 2022	- Year-end survey administered to intervention and control teachers - Year-end survey of students’ 6 Cs administered to intervention and control teachers

Instructional coaches were full-time University of New Hampshire employees who held Master’s degrees in education and satisfied the minimum practice-based coaching qualifications and competency standards under development by the New Hampshire Departments of Health and Human Services and Education.

The coaches received initial training before the first cohort of teachers began in 2019–2020. Although they were experienced kindergarten teachers, they reviewed articles on play-based learning and completed a two-day training program on practice-based coaching through the National Center for Pyramid Model Innovations. They also participated in trainings on instructional coaching with the director of the University of New Hampshire’s lab school. Prior to this study, the coaches met with the principal investigator at the University of New Hampshire to review the 6 Cs.

2.3. Instructional Coaching Implementation

All teachers completed a Teacher–Coach–Administrator agreement specifying the expectations of the coaching program and provided informed consent prior to participation. The 2021–2022 coaching program began in August 2021 with a full-day, in-person and interactive workshop at a local children’s museum, which introduced the playful learning principles, the definition of guided play, and the 6 Cs.

Intervention teachers received 12 visits from their instructional coaches every two-to-three weeks as outlined in Table 1. The first visit focused on forming a collaborative relationship between the teacher and coach. It typically occurred before the start of the school year and addressed four tasks: (1) discuss the teacher’s identified areas of strength, areas for growth, and goals for the coaching experience; (2) review the cyclical coaching process of observation, reflection and feedback, goal setting, and action planning; (3) ensure that goals are SMART (Specific, Measurable, Achievable, Relevant, and Time-Bound); and (4) create an action plan with specific observable steps and necessary supports to reach the identified goals. This process prioritized teacher agency and represented an early iteration of co-designing the intervention between the teacher and coach.

Each subsequent visit included an hour classroom observation by the coach, followed by a 45 min debriefing meeting between the coach and teacher. The coach’s focus during the observation was collaboratively determined by the teacher and coach during a previous visit. This ensured the coaching remained aligned to the teacher’s needs and goals, as well as district curricula. The debriefing meeting was intended as a conversation to allow the coach to share feedback with the teacher and facilitate teacher reflection. The teacher then worked with the coach to identify goals for the next coaching session. All feedback from the coach was rooted in the fundamentals of guided play, the playful learning principles, and the 6 Cs, but aligned with the components of the coaching program that the teacher wanted to advance in their classroom. In this way, the meetings targeted key elements of the intervention, but were not scripted. For example, coaches often began their debriefings by recognizing a positive event that occurred during the observation. Each classroom visit was logged by the instructional coach, who recorded their notes from the observation period, reflections on that observation, notes from the debriefing meeting, and the teacher’s next steps to achieve their goals. A copy of this log was shared with the teacher after each visit.

In addition to their individual coaching sessions, teachers participated in a second full-day, in-person workshop in November 2021. Teachers shared their experiences with the intervention, including both successes and challenges. Discussion focused on the structure of the guided play sessions and the 6 Cs with opportunities for troubleshooting and guidance from coaches. Monthly virtual meetings supplemented this professional development experience and offered teachers additional spaces for collaboration and reflection.

Based on feedback from the initial cohort, school administrators were valuable partners in this iteration of the coaching program. In addition to signing the Coach-Teacher-Administrator agreement, they attended an introductory meeting explaining the coaching model and the planned evaluation of the coaching program. Administrators were also introduced to guided play and the 6 Cs during the meeting.

2.4. Observation Data Sources

This study included two observations of intervention classrooms to document possible pedagogical changes. Both observations were conducted by third-party, trained educational consultants blind to study hypotheses. Initial observations occurred in October 2021 and year-end observations occurred in April 2022. Both observations used a revised version of the COP and TOP [46,47]. The observational manuals are available upon request.

Observations occurred during entire school days, using repeated “sweeps” to capture snapshots of teacher and student behavior across a wide array of lessons and activities. Each individual observation cycle consisted of two halves to capture teacher behavior and the behavior of all students. The first “sweeps” focused on the teacher and any assistant teachers, respectively, followed by “sweeps” observing half the students in the

class individually. The teacher was then “swept” again. This marked the second half of the observation cycle. The second teacher “sweep” was followed by observations of the remaining students in the second half of the class. This yielded up to 40 “sweeps” of the teacher and up to 20 “sweeps” for each student over an observation day. Each “sweep” lasted approximately three seconds. During a “sweep”, the observer categorized behaviors across multiple, mutually exclusive categories. COP and TOP observational data were aggregated up to the classroom level to determine the proportion of “sweeps” that contained a given behavior across all total “sweeps” conducted during the school day [51].

Prior research indicates high interrater reliability for the COP and TOP with Cohen’s kappa estimates for behavior counts ranging from 0.86 to 0.93 and intraclass coefficient estimates for the rating scales ranging from 0.79 to 0.91. Additionally, previous studies found little to no variance in students’ behaviors on the COP, or the quantity or quality of teachers’ instruction on the TOP, over the school year [51].

In this study, kappa estimates ranged from 0.71 (for the *interactions* variable from the COP) to 0.94 (for the *activity type* variable from the TOP) with intraclass coefficients from 0.82 (for the *teacher tone* variable from the TOP) to 0.92 (for the *level of instruction* variable from the TOP). Classroom observations were completed by two third-party observers on the same school day, so twelve observations (25% of the total number of observations completed over the course of the intervention) were double-coded for inter-rater reliability. Therefore, any observed changes in classroom behaviors were likely attributable to the coaching intervention. To investigate our hypotheses, several sets of observational variables were targeted:

At the classroom level, we evaluated the *type of task* that students were expected to complete using the COP. This variable described how a student engaged with classroom resources and participated in an educational activity. It measured not only direct instruction, but instances of guided play, and playful instruction (an activity in which students complete a task, but with minimal agency, such as building a tower according to step-by-step directions). We also analyzed observer ratings of *activity type* on the COP. This variable captured how students were organized, or grouped, for instructional purposes. We focused on the aggregate frequencies of whole-group, teacher-led instruction, small group instruction, center-based activities that were set up by the teacher and permitted greater student agency, and individual student work. The frequency of transitions between activities was also tracked, though this analysis was exploratory.

At the teacher level, we evaluated instructional quality using a *level of instruction* variable for which a teacher received a higher rating if they used open-ended, inferential questions with several conversational turns between themselves and their students (e.g., “What do you think would happen if . . . ?”). The teacher was also expected to facilitate iterative learning, in which students developed and tested hypotheses. Activities that supported critical thinking and creative problem-solving were additional characteristics of high-quality instruction. This variable was unique among those in the COP and TOP observation system for its use of a five-point rating scale during teacher sweeps. In addition to this overall instruction rating, the observer captured when teachers asked their students open-ended questions related to academics. Importantly, the coaching program was predicted to improve teachers’ attitudes towards their students and enable teachers to reduce the amount of time they were required to directly provide instruction. Therefore, this study evaluated data on *teacher tone*, or affect. Teacher tone fell into one of five categories on the TOP, ranging from *extreme negative* (i.e., the teacher being sarcastic towards a child, yelling at them, insulting them, or moving them in the classroom with physical force) to *vibrant* (i.e., the teacher having a strong positive interaction with the students, characterized by smiling and/or laughing and clear excitement about teaching).

At the student level, we measured active learning using a COP variable that captured the use of different instructional *materials*. We focused on the frequency of hands-on manipulative use as an observable demonstration of active learning. Student engagement was measured most directly using the COP’s *involvement* variable. *Involvement* ranged from

low, off-task behavior to high, intensive focus. The COP's *interaction state* variable was used to identify instances of social interaction that could build students' collaboration and communication skills. We focused on the COP's classifications of *associative* and *cooperative* interaction to indicate collaboration among students. Beyond the occurrence of these interactions, we measured instances of student talk in class using the *verbal* variable.

2.5. Analytic Approach

Quantitative analyses initially provided descriptive statistics on all variables of interest from the COP and TOP, comparing pre- and post-coaching observations. This study employed bootstrapped paired *t*-tests for these comparisons to account for both small sample size and potential non-normality of the observation variable frequencies [52–54]. These variables were all scaled and continuous. The analysis was justified because the study implemented a within-subjects design with observations of identical classroom, teacher, and student variables in the same classrooms pre- and post-coaching. All variables were aggregated to the classroom level, so it was not necessary to account for the nesting of students in classrooms. Additionally, the nesting of classrooms in schools was not a concern because all participating teachers were from different schools. Scripts used to conduct these analyses are available upon request.

3. Results

3.1. Classroom-Level Behaviors

The initial classroom-level results evaluated overall pedagogical changes in the classroom environment in response to the coaching program, which emphasized guided play, the playful learning principles, and the 6 Cs. Although the rate of guided play did not significantly change over the intervention year, direct instruction led by the teacher significantly decreased with coaching. The rate of playful instruction, in which a student independently completes a task by following a set of steps established by the teacher to achieve a learning goal, significantly increased. Effect sizes (Hedges' *g*) for the changes in direct instruction and playful instruction were medium at $g = -0.64$ SDs and $g = 0.72$ SDs, respectively, based on guidelines established by Cohen [55,56]. The rate of free play did not significantly change through coaching (Table 2).

Table 2. Observed teacher and student behaviors from pre- to post-coaching measured by the “Teacher Observation Protocol” (TOP) and “Child Observation Protocol” (COP).

Code	Preintervention		Postintervention		Effect Sizes Hedges' g
	Mean	SD	Mean	SD	
Classroom-Level					
Guided Play	0.09	0.08	0.06	0.06	−0.36
Passive Instruction	0.21	0.07	0.14	0.07	−0.64 *
Free Play	0.16	0.10	0.19	0.14	0.24
Playful Instruction	0.23	0.07	0.35	0.15	0.72 **
Student-led Collaborative Groupings ¹	0.26	0.10	0.24	0.13	−0.12
Student-led Individual Groupings ²	0.09	0.10	0.11	0.11	0.07
Teacher-led Whole Group	0.41	0.13	0.39	0.10	−0.08
Teacher-Level					
Average Level of Instruction (range 1 to 4)	1.58	0.19	1.63	0.27	0.14
Average Teacher Tone (range 1 to 5)	3.71	0.17	3.60	0.33	−0.28
Asking Open-Ended Questions	0.03	0.06	0.03	0.05	−0.03
Student-Level					
Talking	0.18	0.05	0.20	0.05	0.48 [†]
Associative or Cooperative Interactions	0.17	0.08	0.21	0.11	0.33
Manipulative Usage	0.27	0.08	0.34	0.12	0.48 [†]
Level of Involvement (range 1 to 5)	2.53	0.14	2.69	0.30	0.52 *

Note. ¹ Child-led collaborative grouping include small groups and center groupings. ² Individual groupings include individual work and individual rotations. Bootstrapped estimates of significance based on 1000 samples.

[†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$.

Analyses of student grouping practices in the classroom (Table 2) revealed no significant changes in the rates of whole-group teacher-led instruction, student-led interactive activities (i.e., small group activities or centers), or individual assignments, regardless of whether that work was completed at stations students were expected to visit according to their teacher's directions (i.e., individual rotations) or completed by all students independently and simultaneously as directed by their teacher (i.e., individual work). Effect sizes for the mean differences in these grouping practices over the intervention were all negligible based on the threshold of 0.2 for a small effect [55], ranging from $g = -0.12$ SDs for student-led collaborative group activities to $g = 0.07$ SDs for activities that were student-led, but completed individually.

3.2. Teacher Behaviors

The *level of instruction* variable represented a measure of the teacher's pedagogical quality consistent with incorporation of the playful learning principles and advancement of the 6 Cs. This variable was measured with each observational sweep on a five-point scale, with zero indicating no instruction occurring and four indicating a high level of inferential learning, in which students were engaged through open-ended questions with multiple conversation turns. They also interacted with each other and the teacher, and generated and tested hypotheses in an iterative manner. By comparison, "basic skills instruction" at level two emphasized learning specific content that can be understood as correct or incorrect (e.g., letter or number recognition). This level also included direct instruction being delivered to students, as in read-alouds, or asking closed-ended questions with fixed answers. After excluding observational "sweeps" where instruction did not occur (i.e., limiting the scale from 1–4), level of instruction did not significantly change with coaching and the effect size was negligible at $g = 0.14$ SDs [55]. Similarly, the rate of open-ended question-asking did not significantly change over the intervention with a negligible effect size of $g = -0.03$ SDs [55]. Teacher *tone*, which was predicted to increase with coaching, did not significantly change, though there was a small, negative effect of $g = -0.28$ SDs [55]; (Table 2).

3.3. Student Behaviors

The changes observed in student variables of interest were mixed (Table 2). Student engagement in learning, as measured by the COP's *involvement* rating, significantly increased from pre- to post-coaching with a medium effect size [55]. Students exhibited a marginally significant increase in their classroom talk with just under a medium effect size. The use of hands-on manipulatives to support instruction, a measure of active learning, showed a marginally significant increase over the course of coaching, again with a near-medium effect size [55]. Despite the overall increase in student talk, socially interactive learning between students during both *associative* and *cooperative* tasks (i.e., collaborative tasks) did not significantly increase, though the mean difference effect size still indicated a small increase in this instructional context [55]. Effect sizes for these student behaviors ranged from $g = 0.33$ SDs for student participation in collaborative tasks to $g = 0.52$ SDs for the students' level of involvement in classroom activities.

4. Discussion

This observational study sought to better understand the mechanisms behind an active playful learning approach in the classroom. By focusing on targeted behaviors at the classroom, teacher, and student levels, we asked whether instructional coaching on guided play, its underlying playful learning principles, and the 6 Cs skills generated the hypothesized changes in students' and teachers' classroom practices.

The results offered partial support for our hypotheses at the classroom and student levels. At the classroom level, we observed a significant decrease in teacher-led direct instruction and a significant increase in playful instruction, a category of playful learning involving student engagement in an educational activity, though with minimal agency,

since the steps required are defined by the teacher. Rates of both guided play and free play did not significantly differ with coaching. Despite these overall shifts in pedagogy, the practices that teachers employed to group students and facilitate instruction did not change with coaching. Rates of whole-group teacher-led instruction, small group and center-based instruction, and individual work and individual rotations directed by the teacher all remained stable. At the teacher level, the degree of high-quality, inferential instruction, including the use of open-ended questions, remained unchanged over the intervention year, as did teacher tone. Yet, the student-level results illuminated multiple behavior changes consistent with participation in guided play and similar opportunities informed by the playful learning principles. Students demonstrated increased engagement in classroom activities and spoke more frequently. They also used manipulatives as educational tools more often, reflecting active learning in practice. Instances of socially interactive and collaborative learning as defined in the COP did not significantly change through coaching, though the increased rate of student talk could generally indicate gains in social interaction outside of those small group contexts.

This study largely replicated and extended the initial feasibility study summarized in Hirsh-Pasek et al. [9]. It demonstrated that teachers could partially implement the coaching program at a greater two-to-three-week frequency and with an additional focus on the 6 Cs. The results complement the existing literature advancing instructional coaching as a best practice for teachers' professional development, since it offers continuous, locally relevant training to help teachers improve their own classroom practices [57,58].

These results also advance understanding of guided play and the playful learning principles in a naturalistic, classroom setting. It is notable that, even as classroom grouping practices did not change with coaching (e.g., the rate of whole-group instruction remained consistent), the level of playful learning offered in those existing contexts shifted away from direct instruction and towards playful instruction. This pattern of results aligns with the theoretical representation of play of Zosh et al. as a spectrum from adult-initiated and -led direct instruction to child-initiated and -led free play [37]. Playful instruction can offer active, engaging, and even meaningful learning, depending on how the activity is facilitated (e.g., a lesson in which each student follows step-by-step instructions to build a model of their school out of five blocks), even as it lacks the student agency of guided play [22]. Granting student agency and shifting towards guided play may be a gradual process and one that teachers are more hesitant to employ. The results of this study reflect how that movement along the spectrum may occur in practice.

It is clear that the coaching program implemented in this study changed the classroom environment and modified student behaviors in ways that promoted deeper learning characteristics. While the results presented here did not consider outcomes, they do suggest that we can create more fertile soil for learning. Importantly, some of the characteristics that we did see emerge are consistent with development of the 6 Cs. For example, greater student talk inherently advances students' *collaboration* and *communication* skills while teaching the same curricular content. It also enhanced the use of manipulatives, which if employed in well-planned, intentional ways, may bolster *critical thinking*. A further study should explore how the full breadth of the 6 Cs is shaped by the classroom environment.

Beyond this study's contributions to the literature on guided play, active learning, instructional coaching, and related areas, it is important to consider how its results advance a new standard for evaluation of complex educational interventions with greater attention to effect sizes. Cohen's original benchmarks for effect size state that an effect of 0.2 SD is small, 0.5 SD is medium, and 0.8 SD is large [59]. However, Kraft proposed new benchmarks for causal studies in pre-K-12 education investigating student achievement: Less than 0.05 SD as small, 0.05 through 0.19 SDs as medium, and ≥ 0.20 SD as large [60]. Taking this study's findings on student behaviors as an example, the minimum effect size in that category of $g = 0.33$ SDs would be classified as large based on Kraft [60], despite the non-significant change in that same social interaction variable over the intervention.

4.1. Limitations and Future Directions

Despite some promising results, this study has a number of limitations, some of which may explain our null findings at the teacher level. Regarding our methodology, it may be necessary to simplify the operational definitions of some variables of interest to capture elements of guided play and the playful learning principles in practice, especially if data are being collected in three-second observational “sweeps” using the COP and TOP. For example, the highest level of instruction references open-ended question asking, meaningful learning, iterative learning, critical thinking, and creative problem-solving in a single description. It may be more effective to measure each of these components individually via other COP and TOP items and to recognize that even these individual elements might not be visible in a short window of time, requiring multiple COP and TOP observations throughout the school year. A qualitative approach to observing teacher and student behaviors associated with guided play offers another strong, complementary methodology to explore the emergence of this pedagogy in practice [61]. Future research should also consider independent student assessment data and teacher-reported data on the feasibility and effectiveness of the coaching program.

Although the sample size of participating teachers was relatively small, it is important to consider how the COP and TOP generate a large volume of data from a smaller sample, aggregating snapshot observations from all students and the teacher, capturing approximately 400 sweeps per classroom each observation day. This reduces the potential impact of sample size on the results compared to a methodology that uses a summative observation or teacher-reported data alone. Additionally, effect sizes were reported using Hedges’ g , which corrects for small sample size [62,63].

It is also informative to explore the generalizability of this intervention. The coaching program was initiated in direct response to the State of New Hampshire’s play-based kindergarten mandate, creating a unique education policy context in which to test the intervention’s effectiveness. Teachers were already familiar with the importance of this pedagogy and required to implement it. At the local policymaking and policy implementation level, school principals are also responsible for presenting an educational vision and supporting it through underlying policies and programs [64]. Prior research implementing the 6 Cs across a school district suggests the importance of district-level investment in a reform effort [9]. An ongoing study is investigating the same program in four states without similar mandates, and varying levels of administrator support, to determine if it generally shifts classrooms and individual teacher and student behaviors towards Active Playful Learning [65].

Study participants were relatively racially and linguistically homogeneous. Given research on the impact of culturally relevant pedagogy, which advances student achievement with attention to the knowledge and experiences that every student brings to the classroom [66,67], future studies should evaluate how this coaching program generalizes cross-culturally for both students and teachers and whether deliberate attention from the outset to meaningful, personally and culturally relevant learning increases intervention efficacy. This further research should investigate the intervention in relation to cross-cultural differences of opinion regarding the roles of play and learning in the classroom [68,69], and cultural differences in how students prefer to interact with each other and their teacher [70]. The three-part equation for Active Playful Learning, as seen in Nesbitt et al. [39], provides a theoretical framework for this research with sufficient flexibility to advance approaches to playful learning that are sensitive to participants’ backgrounds and experiences, bridging community voices and values with the playful learning principles and 6 Cs.

Lastly, this study recruited a control group of teachers to compare to the intervention group that received coaching. However, this design faced several limitations in itself. The control group was a convenience sample from the same schools as the intervention teachers, raising concerns about contamination between conditions. It was also smaller than the intervention group. Data from the control group were only collected at year-end, making

it impossible to evaluate changes in behaviors from baseline. A future study should offer between-groups comparisons in a randomized control trial.

4.2. Conclusions

Despite these limitations, this study advances the literature by using an observational tool with neutral observers to shed light on how a coaching program can be used to better instruction in kindergarten classrooms at scale. The results show changes in important classroom and student level behaviors that are consistent with implementation of instruction based on elements of guided play, the playful learning principles, and the 6 Cs through the instructional coaching program under evaluation. All variables did not improve in a uniformly significant way to suggest that the pedagogical changes seen in this study were explained by the classroom environment generally improving over the school year. Additionally, effect sizes highlight shifts in educationally relevant behaviors that would not be evident from traditional measures of significance alone. This glimpse into one state's implementation of a active playful learning pedagogical approach and its positive effects on teachers and students demonstrates how we might continue, but improve, coaching methods in education to bring about deeper and more joyful learning for students, along with still more rewarding instruction for teachers. Our ongoing research in four states is expanding this approach using mixed methods to better understand the levers that will advance this study and investigate its impacts for teachers and students at scale.

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References

1. Ring, E.; O'Sullivan, L. Dewey: A panacea for the 'schoolification' epidemic. *Education 3-13* **2018**, *46*, 402–410. [[CrossRef](#)]
2. Woodhead, M.; Moss, P. (Eds.) *Early Childhood and Primary Education: Transitions in the Lives of Young Children*; The Open University: Milton Keynes, UK, 2007; ISBN 978-0-7492-1274-2.
3. Clausen, S.B. Schoolification or early years democracy? A cross-curricular perspective from Denmark and England. *Contemp. Issues Early Child.* **2015**, *16*, 355–373. [[CrossRef](#)]
4. Simoncini, K.; Lasen, M. Pop-up loose parts playgrounds: Learning opportunities for early childhood preservice teachers. *Int. J. Play* **2021**, *10*, 93–108. [[CrossRef](#)]
5. OECD. *Early Childhood Education: Equity, Quality, and Transitions*; OECD: Paris, France, 2020.

6. Dee, T.S.; Jacob, B. The impact of No Child Left Behind on student achievement. *J. Policy Anal. Manag.* **2011**, *30*, 418–446. [CrossRef]
7. Ladd, H.F. No Child Left Behind: A deeply flawed federal policy. *J. Policy Anal. Manag.* **2017**, *36*, 461–469. [CrossRef]
8. Darling-Hammond, L.; Flook, L.; Cook-Harvey, C.; Barron, B.; Osher, D. Implications for educational practice of the science of learning and development. *Appl. Dev. Sci.* **2020**, *24*, 97–140. [CrossRef]
9. Hirsh-Pasek, K.; Golinkoff, R.M.; Nesbitt, K.; Lautenbach, C.; Blinkoff, E.; Fifer, G. *Making Schools Work: Bringing the Science of Learning to Joyful Classroom Practice*; Teachers College Press: New York, NY, USA, 2022; ISBN 978-0-8077-6738-2.
10. Nasir, N.S.; Lee, C.D.; Pea, R.; McKinney de Royston, M. Rethinking learning: What the interdisciplinary science tells us. *Educ. Res.* **2021**, *50*, 557–565. [CrossRef]
11. UNESCO. *Why the World Needs Happy Schools: Global Report on Happiness in and for Learning*; UNESCO: Paris, France, 2024.
12. Bassok, D.; Latham, S.; Rorem, A. Is kindergarten the new first grade? *AERA Open* **2016**, *1*, 1–31. [CrossRef]
13. Bornfreund, L. State Laws Requiring Play-Based Learning. Available online: <https://www.newamerica.org/education-policy/edcentral/state-laws-requiring-play-based-learning/> (accessed on 10 June 2024).
14. Edelblut, F. *Play-Based Kindergarten*; New Hampshire Department of Education: Concord, NH, USA, 2018.
15. Danniels, E.; Pyle, A. Defining play-based learning. In *Encyclopedia on Early Childhood Development*; Tremblay, R.E., Boivin, M., Peters RDev, Eds.; CEECD: Montreal, QC, Canada, 2018. Available online: <https://www.child-encyclopedia.com/play-based-learning/according-experts/defining-play-based-learning> (accessed on 10 June 2024).
16. Hirsh-Pasek, K.; Masters, A.S.; Christie, S.; Gibbs, H.M.; Evans, N.S.; Fletcher, K.K.; Pesch, A.; Yang, H.; Fan, W.; Todaro, R.D.; et al. *Where Global Science Meets Playful Learning: Implications for Home, School, and City Planning*; The Lego Foundation and the Yidan Foundation: Billund, Denmark; Hong Kong, China, 2022. Available online: https://cms.learningthroughplay.com/media/bp3ftezg/where-global-science-meets-playful-learning_implications-for-home-school-cities-and-digital-spaces.pdf (accessed on 10 June 2024).
17. Skene, K.; O'Farrelly, C.M.; Byrne, E.M.; Kirby, N.; Stevens, E.C.; Ramchandani, P.G. Can guidance during play enhance children's learning and development in educational contexts? A systematic review and meta-analysis. *Child Dev.* **2022**, *93*, 1162–1180. [CrossRef]
18. Stipek, D.; Feiler, R.; Daniels, D.; Milburn, S. Effects of different instructional approaches on young children's achievement and motivation. *Child Dev.* **1995**, *66*, 209–223. [CrossRef]
19. Burts, D.C.; Hart, C.H.; Charlesworth, R.; Kirk, L. A comparison of frequencies of stress behaviors observed in kindergarten children in classrooms with developmentally appropriate versus developmentally inappropriate instructional practices. *Early Child. Res. Q.* **1990**, *5*, 407–423. [CrossRef]
20. Han, M.; Moore, N.; Vukelich, C.; Buell, M. Does play make a difference? How play affects the vocabulary learning of at-risk preschoolers. *Am. J. Play* **2010**, *3*, 82–105.
21. Toub, T.S.; Hassinger-Das, B.; Nesbitt, K.T.; Ilgaz, H.; Wiesberg, D.S.; Hirsh-Pasek, K.; Nicolopoulou, A.; Dickinson, D.K. The language of play: Developing preschool vocabulary through play following shared book-reading. *Early Child. Res. Q.* **2018**, *45*, 1–17. [CrossRef]
22. Weisberg, D.S.; Hirsh-Pasek, K.; Golinkoff, R.M. Guided play: Where curricular goals meet a playful pedagogy. *Mind Brain Educ.* **2013**, *7*, 104–112. [CrossRef]
23. Weisberg, D.S.; Hirsh-Pasek, K.; Golinkoff, R.M.; Kittredge, A.K.; Klahr, D. Guided play: Principles and practices. *Curr. Dir. Psychol. Sci.* **2016**, *25*, 177–182. [CrossRef]
24. Alfieri, L.; Brooks, P.J.; Aldrich, N.J.; Tenenbaum, H.R. Does discovery-based instruction enhance learning? *J. Educ. Psychol.* **2011**, *103*, 1–18. [CrossRef]
25. Cavanaugh, D.M.; Clemence, K.J.; Teale, M.M.; Rule, A.C.; Montgomery, S.E. Kindergarten scores, storytelling, executive function, and motivation improved through literacy-rich guided play. *Early Child. Educ. J.* **2017**, *45*, 831–843. [CrossRef]
26. Moedt, K.; Holmes, R.M. The effects of purposeful play after shared storybook readings on kindergarten children's reading comprehension, creativity, and language skills and abilities. *Early Child Dev. Care* **2020**, *190*, 839–854. [CrossRef]
27. Fisher, K.R.; Hirsh-Pasek, K.; Newcombe, N.; Golinkoff, R.M. Taking shape: Supporting preschoolers' acquisition of geometric knowledge through guided play. *Child Dev.* **2013**, *84*, 1872–1878. [CrossRef]
28. Weber, A.M.; Leuchter, M. Fostering children's block building self-concepts and stability knowledge through construction play. *J. Appl. Dev. Psychol.* **2022**, *80*, 101400. [CrossRef]
29. Schmitt, S.A.; Korucu, I.; Napoli, A.R.; Bryant, L.M.; Purpura, D.J. Using block play to enhance preschool children's mathematics and executive functioning: A randomized controlled trial. *Early Child. Res. Q.* **2018**, *44*, 181–191. [CrossRef]
30. Blinkoff, E.; Nesbitt, K.T.; Golinkoff, R.M.; Hirsh-Pasek, K. Investigating the contributions of active, playful learning to student interest and educational outcomes. *Acta Psychol.* **2023**, *238*, 103983. [CrossRef] [PubMed]
31. Zosh, J.M.; Gaudreau, C.; Golinkoff, R.M.; Hirsh-Pasek, K. The power of playful learning in the early childhood setting. In *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth through Age 8*, 4th ed.; Friedman, S., Bredekamp, S., Masterson, M., Willer, B., Wright, B.L., Eds.; NAEYC: Washington, DC, USA, 2022; pp. 81–107, ISBN 978-1938113956.
32. Lillard, A.; Else-Quest, N. The early years: Evaluating Montessori education. *Science* **2006**, *313*, 1893–1894. [CrossRef] [PubMed]
33. Lillard, A.S.; Heise, M.J.; Richey, E.M.; Tong, X.; Hart, A.; Bray, P.M. Montessori preschool elevates and equalizes child outcomes: A longitudinal study. *Front. Psychol.* **2017**, *8*, 1783. [CrossRef]

34. Lillard, A.S. *Montessori: The Science Behind the Genius*, 3rd ed.; Oxford University Press: New York, NY, USA, 2017; ISBN 978-0199946457.
35. Keller, M.M.; Hoy, W.A.; Goetz, T.; Frenzel, A.C. Teacher enthusiasm: Reviewing and redefining a complex construct. *Educ. Psychol. Rev.* **2016**, *28*, 743–769. [CrossRef]
36. Moè, A.; Katz, I. Need satisfied teachers adopt a motivating style: The mediation of teacher enthusiasm. *Learn. Individ. Differ.* **2022**, *99*, 102203. [CrossRef]
37. Zosh, J.M.; Hirsh-Pasek, K.; Hopkins, E.J.; Jensen, H.; Liu, C.; Neale, D.; Solis, S.L.; Whitebread, D. Accessing the inaccessible: Redefining play as a spectrum. *Front. Psychol.* **2018**, *9*, 1124. [CrossRef] [PubMed]
38. Pyle, A.; Danniels, E. A continuum of play-based learning: The role of the teacher in play-based pedagogy and the fear of hijacking play. *Early Educ. Dev.* **2017**, *28*, 274–289. [CrossRef]
39. Nesbitt, K.T.; Blinkoff, E.; Golinkoff, R.M.; Hirsh-Pasek, K. Making schools work: An equation for active playful learning. *Theory Into Pract.* **2023**, *62*, 141–154. [CrossRef]
40. Hirsh-Pasek, K.; Hadani, H.S.; Blinkoff, E.; Golinkoff, R.M. *A New Path to Education Reform: Playful Learning Promotes 21st-Century Skills in Schools and Beyond*; The Brookings Institution: Washington, DC, USA, 2020; Available online: https://www.brookings.edu/wp-content/uploads/2020/10/Big-Ideas_Hirsh-Pasek_PlayfulLearning.pdf (accessed on 10 June 2024).
41. Golinkoff, R.M.; Hirsh-Pasek, K. *Becoming Brilliant: What Science Tells Us about Raising Successful Children*; American Psychological Association: Washington, DC, USA, 2016; ISBN 978-1433822391.
42. Winthrop, R.; Barton, A.; McGivney, E. *Leapfrogging Inequality: Remaking Education to Help Young People Thrive*; Brookings Institution Press: Washington, DC, USA, 2018; ISBN 9780815735700.
43. Atwell, M.N.; Tucker, A. *Portraits of a Graduate: Strengthening Career and College Readiness through Social and Emotional Skill Development*; CASEL: Chicago, IL, USA, 2024. Available online: <https://files.eric.ed.gov/fulltext/ED641286.pdf> (accessed on 10 June 2024).
44. Battelle for Kids. Portrait of a Graduate. Available online: <https://www.battelleforkids.org/portrait-of-a-graduate/> (accessed on 31 May 2024).
45. Liu, O.L.; Kell, H.J.; Liu, L.; Ling, G.; Wang, Y.; Wylie, C.; Sevak, A.; Sherer, D.; LeMahieu, P.; Knowles, T. *A New Vision for Skills-Based Assessment*; Educational Testing Service: Princeton, NJ, USA, 2023. Available online: <https://www.ets.org/pdfs/rd/new-vision-skills-based-assessment.pdf> (accessed on 10 June 2024).
46. Farran, D.C.; Kasul, R.; Anthony, K. *Child Observation Protocol Manual*; Vanderbilt University: Nashville, TN, USA, 2019.
47. Farran, D.C.; Kasul, R.; Anthony, K. *Teacher Observation Protocol Manual*; Vanderbilt University: Nashville, TN, USA, 2019.
48. U.S. Department of Education; National Center for Education Statistics; National Teacher and Principal Survey (NTPS). *Public School Teacher Data File*; National Center for Education Statistics: Washington, DC, USA, 2020–2021. Available online: https://nces.ed.gov/surveys/ntps/estable/table/ntps/ntps2021_sft01_t1s (accessed on 10 June 2024).
49. Hampshire Department of Education. *Educational New Attainment of Teachers in New Hampshire Public Schools, 2021–2022*; New Hampshire Department of Education: Concord, NH, USA, 2021. Available online: https://www.education.nh.gov/sites/g/files/ehbemt326/files/inline-documents/sonh/teach-att-21-22_0.pdf (accessed on 10 June 2024).
50. Cousineau, M. *Male Elementary School Teachers Are Few in Number, But Large in Impact*; New Hampshire Union Leader: Manchester, NH, USA, 2024. Available online: https://www.unionleader.com/news/education/male-elementary-school-teachers-are-few-in-number-but-large-in-impact/article_c378228b-793e-5098-b4ce-ed1c2a45dc53.html (accessed on 10 June 2024).
51. Nesbitt, K.T.; Farran, D.C. Effects of prekindergarten curricula: Tools of the Mind as a case study. *Monogr. Soc. Res. Child Dev.* **2021**, *86*, 7–119. [CrossRef]
52. Efron, B. Nonparametric estimates of standard error: The jackknife, the bootstrap and other methods. *Biometrika* **1981**, *68*, 589–599. [CrossRef]
53. Efron, B. Bootstrap confidence intervals: Good or bad? *Psychol. Bull.* **1988**, *104*, 293–296. [CrossRef]
54. Kulesa, A.; Krzywinski, M.; Blainey, P.; Altman, N. Sampling distributions and the bootstrap. *Nat. Methods* **2015**, *12*, 477–478. [CrossRef] [PubMed]
55. National Institute of Standards and Technology. Hedges' g. Available online: <https://www.itl.nist.gov/div898/software/dataplot/refman2/auxillar/hedgeg.htm> (accessed on 31 May 2024).
56. Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed.; Lawrence Erlbaum Associates: Hillsdale, NJ, USA, 1988; ISBN 978-0805802832.
57. Kraft, M.A.; Blazar, D. Individualized coaching to improve teacher practice across grades and subjects: New experimental evidence. *Educ. Policy* **2017**, *31*, 1033–1068. [CrossRef]
58. Kraft, M.A.; Blazar, D.; Hogan, D. The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Rev. Educ. Res.* **2018**, *88*, 547–588. [CrossRef]
59. Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*, 1st ed.; Academic Press: New York, NY, USA, 1969; ISBN 9780121790509.
60. Kraft, M.A. Interpreting effect sizes of education interventions. *Educ. Res.* **2020**, *49*, 241–253. [CrossRef]
61. Wickstrom, H.; Pyle, A. Supporting early math learning along a continuum of guided play. *Early Child. Educ. J.* **2024**. [CrossRef]
62. Goulet-Pelletier, J.-C.; Cousineau, D. A review of effect sizes and their confidence intervals, part I: The Cohen's *d* family. *Quant. Methods Psychol.* **2018**, *14*, 242–265. [CrossRef]

63. Gaeta, L.; Brydges, C.R. An examination of effect sizes and statistical power in speech, language, and hearing research. *J. Speech Lang. Hear. Res.* **2020**, *63*, 1572–1580. [[CrossRef](#)]
64. Shashkin, M. The visionary principal: School leadership for the next century. *Educ. Urban Soc.* **1988**, *20*, 239–249. [[CrossRef](#)]
65. Active Playful Learning. Available online: <https://activeplayfullearning.com/> (accessed on 31 May 2024).
66. Ladson-Billings, G. Toward a theory of culturally relevant pedagogy. *Am. Educ. Res. J.* **1995**, *32*, 465–491. [[CrossRef](#)]
67. Ladson-Billings, G. *Culturally Relevant Pedagogy: Asking a Different Question*; Teachers College Press: New York, NY, USA, 2021.
68. Bishop, E. Using a cross-cultural conception of play to explore the perspectives of parents of Somali heritage and primary school practitioners in an English primary school. *Educ. Child Psychol.* **2020**, *37*, 53–68. [[CrossRef](#)]
69. Yahya, R. Bridging home and school: Understanding immigrant mothers' cultural capital and concerns about play-based learning. *Early Years* **2016**, *36*, 340–352. [[CrossRef](#)]
70. Reid, J.L.; Scott-Little, C.; Kagan, S.L. Diverse children, uniform standards: Using early learning and development standards in multicultural classrooms. *Young Child.* **2019**, *74*, 46–54.

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