International Journal of Education & the Arts

http://www.ijea.org/ **ISSN: 1529-8094**

Volume 24 Number 1 **January 23, 2023**

A Quasi-Experimental Examination of Drama Frames: A Teacher Professional Development Program Targeting Student Reading Achievement

Sultan Kilinc
Syracuse University, USA

Scott C. Marley
Arizona State University, USA

Michael F. Kelley
Arizona State University, USA

Jenny Millinger
Childsplay, Arizona, USA

Citation: Kilinc S., Marley, S. C., Kelley, M.F., & Millinger, J. (2023). A quasi-experimental examination of drama frames: A teacher professional development program targeting student reading achievement. *International Journal of Education & the Arts*, *24*(1). http://doi.org/10.26209/ijea24n1

Abstract

This study examined a professional development (PD) intervention that provided kindergarten-through third-grade teachers with drama-based pedagogy to improve student reading achievement. The PD consisted of collaboration between teaching artists and teachers to integrate drama into English language arts instruction for a school year. Twenty-six classroom teachers and their 815 kindergarten, first-, second-, and third-grade students participated in this quasi-experimental study. Student reading achievement was measured with the Measures of Academic Progress (MAP) in the fall, winter, and spring. With the exception of first-grade students, results indicated statistically significant student growth in favor of the experimental group relative to a business-as-usual comparison group. Implications in terms of embodied theories of cognition and classroom practice are discussed.

Introduction

According to the 2019 National Assessment of Educational Progress (NAEP), 65% of fourth graders performed below proficient in reading. Furthermore, according to NAEP statistics, achievement gaps exist in children from historically underserved communities, reaching reading proficiency at lower rates than their white higher socioeconomic status (SES) peers (National Report Card, 2019). Proficiency gaps between students become alarming at demographic intersections, such as combinations of race, ethnicity, socioeconomic status, and language background (Bohrnstedt et al., 2015; National Center for Education Statistics, 2011; Young, 2019). For example, English learners reach reading proficiency less often than primary English speakers (National Report Card, 2019).

Drama educators and classroom teachers are in a unique position to address these achievement disparities by providing rich, high-quality learning opportunities for all students through collaboration. The present study examines the effectiveness of providing professional development (PD) opportunities to classroom teachers in implementing drama-based pedagogy (DBP) in their classrooms. Specifically, we examined whether DBP during reading instruction positively influenced kindergarten through third-grade student reading proficiency, as assessed by a standardized measure relative to typical instruction.

Arts-Based Instruction

Arts-based instructional strategies hold promise as means to effectively address persistent achievement gaps in student learning outcomes. As school districts grapple with reductions in funding (Mayor, 2013; Shaw, 2018), school-based art instruction in the visual and performing arts has been greatly reduced. Arts-based instruction provided by regular classroom teachers

can therefore provide meaningful learning opportunities for students who otherwise may not have access to formal arts education.

According to the *National Center for Education Statistics* (Parsad & Spiegelman, 2012), from 2000 to 2010 there was a considerable decline in the percentage of schools offering experiences in the visual and performing arts. These opportunity gaps in accessing arts education persist today. For instance, according to a recent report, 39% of schools in the state of Arizona failed to provide instruction in at least two arts disciplines in 2020. Furthermore, schools serving low-income students provided less arts education compared to schools serving high-income students (Morrison, 2021). This issue is particularly troubling given recent findings that suggest arts-based instruction is especially beneficial for low-income and English language learners (Catterall et al., 2012). Several studies have indicated that students from these groups show the greatest gains associated with arts-based instruction on measures of academic achievement (Catterall et al., 2012; Greenfader et al., 2014). A key finding from this literature is that students from underserved populations who are provided rich performing and visual arts experiences tend to achieve higher grade-point averages and complete high school at greater rates than comparable peers. In addition, students who receive arts-based instruction are more likely to attend post-secondary institutions and complete advanced education. These findings seem to suggest that arts-based instruction can provide quality learning experiences, which enhance student learning outcomes and educational attainment. A particularly promising arts-based instruction is DBP.

Drama-Based Pedagogy

Drama-based pedagogy (DBP) uses "active and dramatic approaches to engage students in academic, affective and aesthetic learning through dialogic meaning-making in all areas of the curriculum" (Dawson & Lee, 2018, p.17). DBP integrates drama strategies into curricular areas to enhance student learning. According to Dawson and Lee (2018), successful DBP should include the following four components: (1) a community of learners that allows students to feel a sense of belonging; (2) opportunities to use imagination, to support student exploration of other perspectives and thoughts by building connections between past knowledge and experiences during drama; (3) physical engagement, or embodiment, to encourage "real and imagined viewpoints through body" (p. 20); and (4) a narrative that provides teachers opportunities "to structure imaginative act for and with participants" (p. 21). A growing body of literature connecting drama to academic benefits suggests that DBP effectively enriches educational environments (Band et al., 2011, Edmiston, 2007; Lee et al., 2015).

Research on Drama-Based Pedagogy and Reading

Evidence from three meta-analyses (Lee et al., 2020; Lee et al., 2015; Podlozny, 2000) supported DBP as a broadly effective instructional approach compared to typical classroom instruction. Lee et al. (2020) revealed significant positive effects of DBP on K-12 students' literacy achievement outcomes in reading and writing. When compared to typical classroom listening and reading instruction, Podlozny (2000) found medium-to-large effects on reading comprehension, reading readiness, story understanding, oral language development, and writing when using DBP.

While meta-analytic evidence suggests DBP is effective across student populations and domains of learning, Lee et al.'s (2015) meta-analysis showed that DBP was particularly effective on achievement outcomes for preschool and lower elementary students compared to upper elementary and middle school students. On the other hand, Podlozny (2000) found no relationship between DBP and age in story understanding, reading achievement, and writing, meaning that pre-K to third grade students benefit from DBP. Further, while DBP was more effective in oral language development for older (eighth-and-ninth-grade) students, it was more effective in writing achievement for young first-and-second-grade students.

DBP also influences non-academic outcomes that are expected to facilitate student learning. For example, evidence suggests that student attitudes and motivation towards academic content areas are enhanced with DBP (Lee et al., 2015; Lee et al., 2020; Lee et al., 2019). According to Lee et al. (2020), both the facilitator of DBP and the duration of the intervention influenced student learning outcomes. Mainly, it was found that classroom teachers, rather than drama facilitators, implementing DBP for a longer duration improved student outcomes more than only drama facilitators implementing it.

Vocabulary knowledge is a key predictor of reading comprehension and achievement (Apthorp, 2006; Sparks et al., 2014; Quinn et al., 2015). Podlozny's (2000) meta-analysis found a small positive relationship between DBP and vocabulary development, with greater effects being observed especially with longer-duration of drama interventions. Joseph (2013) likewise examined the effectiveness of creative dramatics on fourth-grade students' vocabulary achievement. Using two treatment groups, Creative Dramatics and Vocabulary words and Creative Dramatics and Story Retelling, Joseph (2013) integrated creative dramatics into a language arts class for twenty days. A statistically significant medium-sized effect was observed for the first treatment group in which creative dramatics embedded target vocabulary words through singing, chanting, and pantomiming, compared to the second treatment group that used story retelling enactments without particular emphasis on the target vocabulary words. Furthermore, a medium-to-large effect size was observed for both

treatment groups compared to the control group that only utilized Readers' theatre[1]. Qualitative studies also revealed the positive impact of DBP on vocabulary. Teachers who participated in DBP professional development programs in two different studies perceived that their students improved and retained the vocabulary they used during drama. According to participating teachers, drama provided multiple opportunities for students to engage with new vocabulary through kinesthetic exploration, movement, and enactment of words (Greenfader & Brouillette, 2013; Kilinc et al., 2017).

Embodied Cognition and Drama-Based Pedagogy

Embodied cognitive theories provide a theoretical explanation for the effectiveness of DBP. Embodiment theories of cognition propose that cognitive processes are linked to the body and its interactions with the environment (Barsalou, 1999; Glenberg & Robertson, 2000; Glenberg et al., 2007). Thelen et al. (2001) elaborated on the "embodied" nature of cognition as in the following:

> To say that cognition is embodied means that it arises from bodily interactions with the world. From this point of view, cognition depends on the kinds of experiences that come from having a body with particular perceptual and motor capacities that are inseparably linked and that together form the matrix within which memory, emotion, language, and all other aspects of life are meshed (p. 1).

According to embodied cognitive theories, learning is enhanced when instruction promotes physical activity. For example, research on listening and reading instruction with preschool and elementary-aged children supports the benefits of physical activity in language learning contexts (Marley & Szabo, 2010; Marley & Carbonneau, 2015). Considerable evidence indicates that story comprehension is facilitated when students engage in moving real and imagined objects to represent story events (Glenberg et al., 2004; Marley et al., 2007; Marley & Szabo, 2010). In these studies, language-relevant physical activity facilitated the construction of referential links between abstract (i.e. words and numbers) and concrete (i.e. objects) representations, called indexing in embodied cognitive theory (Glenberg et al., 2004; Marley & Szabo, 2010).

Berenhaus et al. (2015) compared two embodiment techniques—active experiencing and indexing—to support the reading comprehension of children between the ages of 7 and 11 years old. Active experiencing refers to "the process of internalizing a text through emotional expressions (i.e., for dialogue, adopting the emotionality of the story's characters; for

[1] Joseph (2013) defined Readers' theatre as "an orchestrated reading that relies primarily on vocal characterization and does not include the elements of visual theatre, such as costuming, sets, or blocking in the presentation" (94).

descriptive phrases, expressing the emotionality of emotionally driven language…and gesture" (Berenhaus et al., 2015, p. 322). In the indexing group, children used a Playmobil playset to act out a story in a particular setting (e.g., kitchen table), with characters (e.g., mother) and relevant objects (e.g., refrigerator) while reading the story out loud. In the active experiencing group, children engaged with the story through gestures, physical movements, and emotional expressions. The control group read the story without embodied activities. The findings showed that children in the active experiencing group slightly improved in their recall of descriptive ideas units of the story (e.g., "Today is Isaac's 10th birthday") more than the indexing group, although both improved over the control group. While indexing benefited "poorer comprehenders," active experiencing supported story recall in both "skilled and poorer comprehenders." This finding implies that DBP could benefit a broader range of students, considering that the elements of active experiencing (e.g., gestures, exploring characters' emotions in a story) are analogous to instructional strategies that occur in DBP.

After reviewing the literature, Sadoski (2018) concluded that the use of embodied learning strategies "largely involves the provision of learning contexts that are rich enough to evoke simulations of concrete experiences even when the subjects are relatively abstract (p. 343)." Drama provides these types of experiences by allowing students to take the roles of others and physically perform events taking place in stories. For example, Trowsdale and Hayhow (2015) integrated a mimetic "interactive, nonverbal, psycho-physical theatre practice," for over five years in special education (p. 1022). The mimetic process unfolded as a theatre practitioner's initiation of action without verbal explanation, and children copied and responded to the action. Through mimetic interaction, they engaged in non-verbal storytelling and explored emotions in imagined contexts. For instance, when they came across a bridge in an imagined context, they pretended to experience an imbalance and the emotion of nervousness. Embodied learning through mimetics promoted learning, engagement, problem-solving, and creative thinking in students with disabilities by fortifying their strengths and agency (Trowsdale & Hayhow, 2015).

At a finer level of granularity, gesture is part of drama (Wagner, 2002) that benefits language development (Iverson & Goldin-Meadow, 2005; Kuhn et al., 2014), inference-making when reading (Nathan & Martinez, 2015), and narrative comprehension (Dargue & Sweller, 2020). There are two fundamental theoretical explanations for how gesture fosters learning. First, gestures increase learner attention on focal information. Learner attention enhances the encoding and retrieval of target information (Biau & Soto-Faraco, 2013). Second, gestures facilitate learning when semantically connected to speech by providing a motoric and visual representation of target information that later facilitates recall (Dargue & Sweller, 2020; Woodall & Folger, 1985).

Drama Frames Professional Development Program

The Drama Frames Professional Development (PD) program was a year-long program that paired teaching artists (TAs) with kindergarten through third-grade teachers to integrate drama strategies into their English Language Arts (ELA) curriculum. Drama Frames was an apprenticeship model that employed guided participation processes to support teachers in using effective drama strategies in the ELA curriculum (Kilinc et al., 2016; Rogoff, 1995). This guided participation process did not consist solely of expert-novice dyadic instruction (Kilinc et al., 2016). Instead, the program required TAs and teachers to work collaboratively in developing tailored approaches to implementing DBP during ELA activities (Kilinc et., 2016; Rogoff, 1995). Based on this collaborative model, teachers brought their expertise in reading instruction to designing lesson plans, while the TAs provided their knowledge about drama to make effective lesson plans responsive to the needs of students.

Drama Frames purposefully matched *pantomime*[2]*, character development*[3]*,* and *group story building*[4] drama strategies to meet kindergarten and first-grade ELA learning objectives associated with *key ideas and details, point of view,* and *problem-solving,* respectively. With second- and third-grade children, *tableau*[5]*, pantomime,* and *structured improvisation* [6]drama strategies were matched to ELA learning objectives associated with *singular to plural noun conversions, action verbs, points of view, vocabulary,* and *cause and effect relationships*. Drama Frames intentionally matched drama strategies with curricular goals, and the strategies were implemented as units.

Participating classroom teachers engaged in six Drama Frames units, with each unit requiring a month of implementation. The first three units were implemented in the fall to provide teachers with foundational knowledge and skills in applying drama to literacy instruction. Deep, sustainable learning required distributed instruction and practice; therefore, classroom

---

[2] Pantomime is facilitating/demonstrating an engagement with imaginary objects or environments via the body. Pantomime 2.0 focuses on narrating/physicalizing a sequential journey through a story or environment.
[3] Character Development is facilitating/assuming the physicality and point of view of a character in a story; students experience and express a character's perspective. Character 2.0 focuses on experiencing an emotional journey through the perspective of a character.
[4] Group Story Building is using adaptive facilitation to focus on creatively solving a problem, acting out possible solutions, and analyzing outcomes. Group Story Building 2.0 focuses on a stair-step sequence of story problems in which the solution to one problem creates the conditions for the next problem
[5] Tableau is creating frozen images with our bodies. Successful tableau uses and analyzes highly specific physical representations with our bodies and faces.
[6] Structured Improvisation involves interview techniques that use characters and a collective situation to increase student investment in content. Students and teachers are in roles while asking and answering questions on a topic. Structured Improvisation 2.0 focuses on a teacher's ability to deepen a student's experience while remaining in role.

teachers returned to each Drama Frame with Level 2.0 units in spring, to refine facilitation skills and transfer instructional responsibilities for lesson planning to classroom teachers.

Each unit included the following: (1) *model lessons* in which TAs taught a lesson based on the Drama Frame, (2) an *in-service* in which teachers and TAs met in site-level cohorts to develop the facilitation of target drama strategies, and co-plan for their team-lesson, (3) a *team lesson* in which TAs and teachers co-taught a lesson based on the Drama Frame, (4) a *planning* session where teachers designed their solo lessons with the assistance of the TAs, (5) a *solo lesson* in which teachers taught a lesson based on the Drama Frame, and (6) a *reflection* session in which TAs and teachers reflected on the overall unit (Kilinc et al., 2016). While the classroom teachers participated in all six sessions of a unit, students were exposed to DBP in the model, team, and solo lessons of each unit across one year. Figures 1 and 2 represent the Drama Frame PD model, and Figure 3 shows the Drama Frames Unit model.

Drama Frames was designed to be responsive to the needs of students and teachers in different types of classrooms (i.e., mainstream, Structured English Immersion [SEI], dual language education [DLE]). For instance, each K-3 DLE classroom was supported by integrating Spanish into the language of instruction of the Drama Frame lessons. Through responsive drama-based instruction providing embodied learning opportunities, the program aimed to support students' reading outcomes.

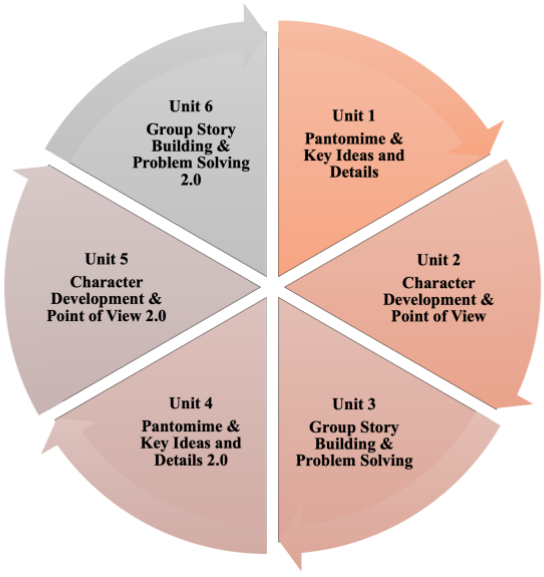

Figure 1. Drama Frames PD Model for Kindergarten and First-grade.

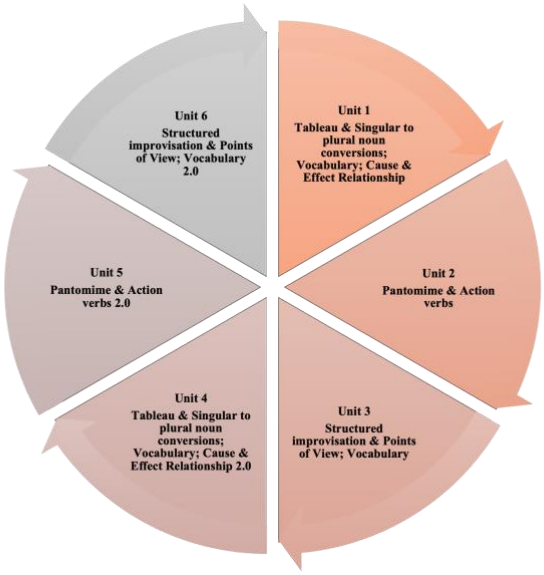

Figure 2. Drama Frames PD Model for Second and Third grade.

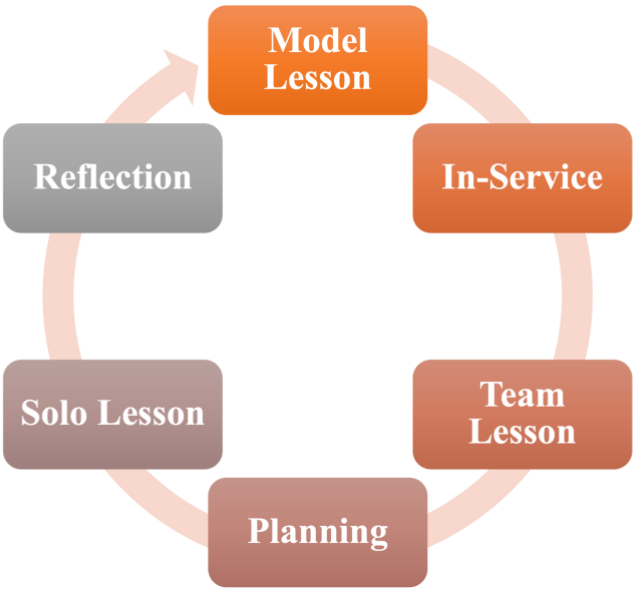

Figure 3. Drama Frames PD Unit Model for All Grades.

The Present Study

Although rich opportunities exist for DBP experiences, students often have limited access to drama teaching artists (Brown, 2007). As a result, teachers often teach drama content and skills without appropriate backgrounds (Garvis & Pendergast, 2011; Nardo et al., 2006). Therefore, the purpose of the present study was to examine the effectiveness of a high-quality PD program that taught classroom teachers how to implement drama during ELA instruction. We were guided by the following research questions:

1. Do kindergarten and first-grade students who are taught using the Drama Frames PD model exhibit greater Measures of Academic Progress (MAP) subscales on *foundational skills, language and writing, literature and informational, vocabulary use* and *functions* reading performance than the students of comparison group teachers?
2. Do second and third-grade students who are taught using the Drama Frames PD model exhibit greater MAP subscales on *literature, informational text,* and *vocabulary acquisition and use* reading performance than the students of comparison group teachers?
3. Do kindergarten through third-grade students who are taught using the Drama Frames PD model have greater total MAP reading scores than the students of comparison group teachers?

Based on the reviewed literature, we anticipated that providing teachers systematic PD in incorporating drama into ELA instruction would improve student reading achievement.

Methods

Setting and Participants

Drama Frames PD was implemented in kindergarten through third-grade classrooms located in an urban school in the Southwestern United States. Twenty-six teachers (n = 8 in kindergarten, n = 6 in first-grade, n = 6 in second-grade, n = 6 in third-grade; see Table 1 for teacher characteristics) and 815 students participated in the study (see Table 2 for student characteristics). There were 561 students in the experimental group (n = 152 in kindergarten, n = 131 in first-grade, n = 130 in second-grade, n = 148 in third-grade) and 254 students in the comparison group (n = 64 in kindergarten, n = 61 in first-grade, n = 56 in second-grade, n = 73 in third-grade). Teachers of the experimental group students received DBP while the teachers of the control group students continued business-as-usual teaching practices.

Table 1

Teacher background characteristics

Variable	N	%
Race/Ethnicity		
White	16	61.54
Latina/o	7	26.92
African American	1	3.85
Asian	1	3.85
Mixed	1	3.85
Highest Degree Obtained		
Master	15	57.69
Bachelor's degree	11	42.31
Classroom Type		
Mainstream	17	65.38
Dual Language	7	26.92
Structured English Immersion	2	7.69
	M	SD
Age	35.35	10.14
Years of Teaching	10.19	8.80
Years of Teaching at Current Placement	5.42	6.71

Table 2

Student background characteristics

	Experiment		Control	
Variable	N	%	N	%
Grade Level				
Kindergarten	152	100	64	100
Gender				
Female	70	46	26	41
Male	82	54	38	59
Race/Ethnicity				
White	14	9	6	9
Hispanic	107	70	42	66
Black or African American	9	6	8	13

American Indian or Alaskan Native	10	7	6	9
Asian	8	5	2	3
Two or more	4	3	0	0
First-Grade	131	100	61	100
Gender				
Female	71	54.2	30	49.2
Male	60	45.8	31	50.8
Race/Ethnicity				
White	13	9.9	3	4.9
Hispanic	96	73.3	37	60.7
Black or African American	7	5.3	10	16.4
American Indian or Alaskan Native	6	4.6	7	11.5
Asian	6	4.6	2	3.3
Two or more	3	2.3	1	1.6
Not reported			1	1.6
Second-Grade	130	100	56	100
Gender				
Female	61	46.9	31	55.4
Male	69	53.1	25	44.6
Race/Ethnicity				
White	12	9.2	3	5.4
Hispanic	89	68.5	32	57.1
Black or African American	14	10.8	10	17.9
American Indian or Alaskan Native	6	4.6	7	12.5
Asian	6	4.6	3	5.4
Native Hawaiian and Pacific Islander			1	2
Two or more	3	2.3	0	0
Third-Grade	148	100	73	100
Gender				
Female	72	48.6	29	39.7
Male	76	51.4	44	60.3
Race/Ethnicity				
White	16	10.8	7	9.6
Hispanic	111	75	45	61.6
Black or African American	6	4.1	11	15.1
American Indian or Alaskan Native	8	5.4	6	8.2
Asian	2	1.4	4	5.5
Two or more	5	3.4	0	0

Instrumentation

Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) were used to measure baseline (fall), mid-year (winter), and post (spring) intervention reading proficiency of experimental and control groups of students by the School District. The MAP focuses on specific content goals or strands aligned with the state's content standards, and is designed as a multiple-choice format test, in which questions are adjusted based on students' responses. Thus, one of the main goals of this test is to provide information about students' progress to guide instruction (NWEA, 2011).

The MAP provides a score based on the item-response theory, ranging from MAP 130 to 230. The overall scores are on a vertical scale allowing assessment of growth across grade levels. The MAP also provides subscale scores that apply only to two grade levels at a time. The kindergarten and first-grade MAP include *foundational skills* (i.e. phonics, syllables, sounds, and word analysis), *language and writing* (i.e. capitalization, punctuation, spelling, grammar, and usage), *literature and informational* (i.e. inferences, textual evidence, key ideas and topics, and understanding of a reading or hearing), and *vocabulary use and functions* (i.e. meaning of unknown words and phrases, context clues, and word parts) subscales; whereas, the second- and third-grade MAP contains *literature* (i.e. understanding and analyzing literary texts, making inferences and predictions, and evaluating the author's purpose), *informational text* (i.e. comprehending informational texts, making inferences and predictions, drawing conclusions, citing textual support, and finding key ideas and topics), and *vocabulary acquisition and use* (i.e. understanding word relationships and structures) subscales. The total score reliabilities of MAP are reported in the technical manual (NWEA, 2011; NWEA, 2019) as follows: kindergarten ($\alpha = 0.949$), first grade ($\alpha = 0.969$), second grade ($\alpha = 0.963$), and third grade ($\alpha = 0.945$).

Procedures

Drama Frames PD integrated drama strategies into ELA content areas with a three-year program that followed students from kindergarten to third grade. Kindergarten teachers and their students participated in the Drama Frames program in 2015-2016. First-grade teachers and their students participated in the program in 2016-2017. Second- and third-year teachers and students participated in 2017-2018. All students received DBP in the following order: first, from a teaching artist (i.e., model lesson); second, from the teaching artist and classroom teacher (i.e., team lesson); and third, from the classroom teacher (i.e., solo lesson). The lesson plans in each part of the units were developed collaboratively by the TAs and the teachers related to the ELA curriculum.

Kindergarten and first-grade students engaged in *pantomime, character development,* and *group story building* drama strategies to focus on *key ideas and details, point of view,* and *problem-solving* ELA learning objectives. For example, the Drama Frame Pantomime/Key Ideas and Details employed a pantomime re-tell of a story to identify and emphasize the key plot points in a text. Second-and third-grade children engaged in *tableau, pantomime,* and *structured improvisation* to meet ELA learning objectives associated with *singular to plural noun conversions, vocabulary, cause and effect relationships, action verbs, adjectives, compound words,* and *points of view*. [See Figure 1 and 2]. Across all grades, a unit was completed in a month. There were six units in a school year: three in the fall and three in the spring. Therefore, students in all grades participated in 18 drama lessons in six months. Each lesson was approximately 45 minutes, so students were exposed to DBP for approximately 810 minutes in total.

Drama Frames lesson structure began with an opening ritual (i.e., drama song), followed by an anticipatory set where key vocabulary and curricular concepts were introduced, or content was reviewed. Then teachers implemented the lesson using drama strategies. Next, a reflection or an exit ticket was used to assess student learning of the lesson. The lessons ended with a closing ritual. There was a slight difference between kindergarten and first-grade lessons and second and third-grade lessons. Kindergarten-and first-grade lessons used a literary text or a storybook to facilitate drama lessons, whereas second-and third-grade lessons centered around a curricular concept, such as adjectives or plurals.

For instance, pantomime was used to teach action verbs in second-and third-grade students. In one of the second-grade solo lessons, after the opening ritual, the teacher reviewed what an action verb was and how to identify an action verb in the anticipatory set. Then she introduced pantomime and modeled pantomime using action verbs. Next, she used an environment (e.g., playground), brainstormed action verbs that would take place in that environment, and wrote down the action verbs identified by the students on the board. Then, these action verbs were reinforced by pantomime using the "Yes, let's" phrase. The teacher modeled the first round by pantomiming, "Let's catch a ball," and introduced a choral response from the students: "Can we do it?" Then, students, as a choral response, "Yes! Let's catch a ball." Next, everyone pantomimed the chosen action verb—catching a ball. She invited students to volunteer other verbs to physicalize from the list that was brainstormed. The class ended when students had an understanding that an action verb was something that they did. The teacher asked students to write down three action verbs and draw a picture to represent them as an exit ticket.

The control group students did not receive DBP. Experimental and control group students in all grades received the MAP tests at the beginning, middle, and end of each school year. The classrooms were not randomly assigned to the experimental and comparison groups.

Data Analysis

With subscale scores, within each grade level, two level growth models with random coefficients were fit to the data. Since MAP scores are comparable across grade levels, a common model for all grades was tested using total scores. At level one, measurement occasion was a three-level (baseline, mid-study and posttest) within-subjects variable. At level two, experimental group (0 = comparison, 1 = experimental) was entered along with demographics as statistical controls. The y-intercept represents the post-test intervention scores of comparison children, and the group coefficient represents the difference between the comparison and experimental groups. The slope represents the change over time of student achievement on the MAP for the comparison group. The condition slope is the difference between the comparison and experimental groups' slopes. The type I error rate was set to .05 for all tests.

Results

The following paragraphs report the statistically significant condition-related effects (see Tables 3-7 for summary).

Kindergarten

Literature and informational. The main effects of treatment on the intercept and slope were statistically significant, $p < .01$. The treatment group ($M = 151.063$) had higher literature scores in the spring than the comparison group ($M = 146.606$). The time slope in the treatment group was $\gamma = 2.883$ points greater than that of the comparison group, indicating that drama-based-pedagogy students improved at a greater rate than comparison students.

Table 3

Growth model analysis of subscale performance with kindergarten students (standard errors in parentheses)

		Dependent Variable			
		Foundations	Language and Writing	Literature and Informational	Vocabulary
Fixed Effects					
Intercept	γ_{00}	148.150	149.702	146.606	147.868
		(2.253)**	(2.083)**	(2.107)**	(2.418)**
Group (ref = comparison)	γ_{01}	3.286	2.182	4.463	2.676
		(1.966)	(1.818)	(1.839)*	(2.110)
Gender (ref = male)	γ_{02}	3.644	2.135	3.376	2.304
		(1.807)*	(1.671)	(1.690)*	(1.940)
Hispanic (ref = non)	γ_{03}	-1.988	-0.771	0.148	0.289
		(1.981)	(1.832)	(1.853)	(2.127)
ELL (ref = non ELL)	γ_{04}	-0.731	-2.736	-1.794	-3.144
		(1.895)	(1.753)	(1.773)	(2.035)
Time Slope					
Intercept	γ_{10}	8.068	8.670	3.720	6.093
		(1.270)**	(1.049)**	(1.053)**	(1.263)**
Group (ref = comparison)	γ_{11}	1.417	0.175	2.883	0.295
		(1.108)	(0.916)	(0.919)**	(1.103)
Gender (ref = male)	γ_{12}	2.510	0.684	1.298	-0.212
		(1.019)*	(0.813)	(0.844)	(1.013)
Hispanic (ref = non)	γ_{13}	-0.466	-0.636	-0.709	-1.297
		(1.117)	(0.923)	(0.927)	(1.111)
ELL (ref = non ELL)	γ_{14}	3.385	1.176	1.632	1.772
		(1.068)**	(0.882)	(0.855)	(1.063)

* $p < .05$. ** $p < .01$

First Grade

Foundational skills. A statistically significant condition-related difference was observed with a time slope (γ= -3.457) favoring the comparison group.

Literature and informational. The time slope (γ = -3.885) for condition was statistically significant. Again, this difference favored the comparison group.

Table 4

Growth model analysis of subscale performance with first-grade students (standard errors in parentheses)

		Dependent Variable			
		Foundations	Language and Writing	Literature and Informational	Vocabulary
Fixed Effects					
Intercept	γ_{00}	185.322	175.888	180.452	178.200
		(4.914)**	(4.049) **	(4.099)**	(3.943)**
Group (ref = comparison)	γ_{01}	-3.293	0.534	-5.331	-2.452
		(4.245)	(3.499)	(3.542)	(3.407)
Gender (ref = male)	γ_{02}	2.983	4.049	5.695	4.242
		(2.617)	(2.157)	(2.184)*	(2.100)*
Hispanic (ref = non)	γ_{03}	-0.427	1.341	-0.402	0.865
		(2.889)	(2.381)	(2.410)	(2.318)
ELL (ref = non ELL)	γ_{04}	-10.810	-6.414	-7.896	-8.650
		(3.822)**	(3.150)*	(3.189)*	(3.067)**
Time Slope					
Intercept	γ_{10}	16.234	8.893	13.277	11.091
		(1.946)*	(1.590)**	(1.653)**	(1.689)**
Group (ref = comparison)	γ_{11}	-3.457	-0.781	-3.885	-2.389
		(1.681)*	(1.374)	(1.428)**	(1.459)
Gender (ref = male)	γ_{12}	-1.195	-0.949	-1.201	-1.559
		(1.037)	(0.847)	(0.880)	(0.899)
Hispanic (ref = non)	γ_{13}	0.696	2.153	0.056	1.110
		(1.145)	(0.935)*	(0.972)	(0.993)
ELL (ref = non ELL)	γ_{14}	-3.919	0.273	-1.160	-1.463
		(1.514)*	(1.237)	(1.286)	(1.314)

†< .10 * $p < .05$. ** $p < .01$

Second Grade

Informational text. The drama group had marginally significant higher scores in the spring (M = 186.878) than the comparison group (M = 182.371), $p < .10$. The group by time interaction was statistically significant with experimental students gaining at a greater rate (γ = 12.936) than comparison students (γ = 8.514), $p < .05$.

Literature. The drama group had statistically significant higher scores in the spring (M = 186.874) than the comparison group (M = 180.874), $p < .05$. The group by time interaction was statistically significant with experimental students gaining at a greater rate (γ = 10.654) than comparison students (γ = 5.382), $p < .01$.

Vocabulary acquisition and use. The drama group had descriptively higher scores in the spring (M = 183.774) than the comparison group (M = 179.836). The group by time interaction was statistically significant with experimental students gaining at a greater rate (γ = 9.722) than comparison students (γ = 5.740), $p < .01$.

Table 5

Growth model analysis of subscale performance with second-grade (standard errors in parentheses)

		Dependent Variable		
		Informational	Literature	Vocabulary
Fixed Effects				
Intercept	γ_{00}	182.371	180.874	179.836
		(3.100)**	(3.042)**	(3.053)**
Group (ref =	γ_{01}	4.507	5.478	3.938
comparison)		(2.712) †	(2.661)*	(2.671)
Gender (ref = male)	γ_{02}	2.857	3.177	2.240
		(2.488)	(2.442)	(2.450)
Hispanic (ref = non)	γ_{03}	-1.564	-0.9452	-0.299
		(2,617)	(2.568)	(2.577)
Time Slope				
Intercept	γ_{10}	8.514	5.382	5.740
		(1.109)**	(1.167)**	(1.044)**
Group (ref =	γ_{11}	3.793	5.272	3.982
comparison)		(0.970)**	(1.020)**	(0.914)**
Gender (ref = male)	γ_{12}	-0.281	0.045	0.561260
		(0.90)	(0.936)	(0.838)
Hispanic (ref = non)	γ_{13}	-0.729	-0.776	-0.170
		(0.936)	(0.985)	(0.882)

†< .10 * $p < .05$. ** $p < .01$

Third Grade

Vocabulary acquisition and use. In the first main effect of interest, the treatment group, was statistically significant, $p < .05$. The experimental group had higher mean scores in the spring ($M = 194.409$) than the comparison group ($M = 188.751$). The group by time interaction was statistically significant with experimental students gaining at a greater rate ($\gamma = 8.158$) than comparison students ($\gamma = 5.357$), $p < .05$.

Table 6

Growth model analysis of subscale performance with third-grade (standard errors in parentheses)

		Dependent Variable		
		Informational	Literature	Vocabulary
Fixed Effects				
Intercept	γ_{00}	190.544	191.037	188.751
		(2.806)**	(2.652)**	(2.722)**
Group (ref = comparison)	γ_{01}	3.275	2.326	5.658
		(2.580)	(2.439)	(2.503)*
Gender (ref = male)	γ_{02}	3.303	3.010	1.128
		(2.414)	(2.282)	(2.342)
Hispanic (ref = non)	γ_{03}	-2.914	-3.508	-3.590
		(2.655)	(2.510)	(2.576)
Time Slope				
Intercept	γ_{10}	5.921	5.749	5.357
		(0.948)**	(0.950)**	(0.821)**
Group (ref = comparison)	γ_{11}	1.052	1.019	2.801
		(0.871)	(0.864)	(0.755)**
Gender (ref = male)	γ_{12}	0.515	0.927	-0.055
		(0.815)	(0.809)	(0.706)
Hispanic (ref = non)	γ_{13}	-1.741	-2.593	-2.250
		(0.897)	(0.890)**	(0.777)**

†< .10 * $p < .05$. ** $p < .01$

All Grades

The MAP scores are comparable across grade levels and can be used to measure student growth. The coefficient for condition on the y-intercept was not statistically significant, indicating that the two conditions did not differ at the completion of the study. However, the

coefficient for the slope on condition effect, $\gamma = 1.521$, was statistically significant, $p < .001$, indicating that the DBP group improved at a greater rate than the comparison group.

Table 7

Growth model analysis of map total scores with all students (standard errors in parentheses)

		MAP Total Score
Fixed Effects		
Intercept	γ_{00}	157.194 (1.916)**
Group (ref = comparison)	γ_{01}	-1.376 (1.711)
Gender (ref = male)	γ_{02}	3.672 (1.570)*
Hispanic (ref = non)	γ_{03}	0.132 (1.697)
Time Slope		
Intercept	γ_{10}	7.455 (0.425)**
Group (ref = comparison)	γ_{11}	1.521 (0.380)**
Gender (ref = male)	γ_{12}	0.063 (0.377)
Hispanic (ref = non)	γ_{13}	-0.603 (0.377)

*$p < .05$. **$p < .01$.

Discussion

The present study examined the impact of the Drama Frames PD program, which scaffolded teachers to integrate drama into their ELA instruction, on kindergarten through third-grade students' reading outcomes. Two primary conclusions can be drawn for research and practice from this present study. First, DBP students improved at a greater rate than comparison students. Second, the majority of grade-level differences on the MAP subscales favored the DBP group. Relative to the same grade-level comparison groups, kindergartners demonstrated improvement on the *literature and informational* subscale, second graders improved on all subscales—*literature, informational text, vocabulary acquisition and use*—, and third graders improved on the *vocabulary acquisition and use* subscale. This finding aligns well with the overall effectiveness of DBP observed elsewhere in the literature (Lee et al., 2015; Lee et al., 2020; Podlozny, 2000). For instance, Podlozny's meta-analysis (2000) found a moderate effect on reading achievement measured by standardized tests in favor of DBP. This finding showed that students' physical engagement of drama in understanding the meaning of texts could be transferred in general reading ability. In addition, no age relationships were found between DBP and reading achievement, meaning that DBP was effective for students in grades 1 through 11 (Podlozny, 2000).

Second-and-third graders in this study improved in vocabulary acquisition and application. This finding is consistent with previous studies conducted with third and fourth grade students (Cooper, 2005; Joseph, 2013) and previous meta-analysis (Podlozny, 2000). Mages' (2018) quasi-experimental study findings revealed that preschool students in the drama experimental group developed their receptive vocabulary measured by Peabody Picture Vocabulary Test (PPVT-III) from the beginning to the end of the drama intervention; however, these differences were not significant between intervention and control groups. No measurable effect of drama intervention was associated with the possibility of PPVT-III not being sensitive to capture small changes in young students' vocabulary knowledge and not including the specific vocabulary learned in the drama intervention. Thus, Mages (2018) argued that a different instrument directly measuring students' vocabulary learned in drama could have detected the effect of the drama on vocabulary acquisition. It is important to note that target vocabularies were embedded in the drama instruction in Cooper's (2005) and Joseph's (2013) studies, which could be considered as "direct" outcome measures, which did not require students to transfer their learning into a new context. In this sense, the present study finding on a measure of vocabulary acquisition and application is of practical importance considering students need to transfer their learning in DBP in a new context—the MAP test.

Previous meta-analyses found stronger positive effects for DBP when the interventions directly aligned with measured outcomes. For instance, when both DBP intervention and measurement outcome focus on writing skills (Lee et al., 2015; Lee et al., 2020) a larger impact is anticipated. In this study, some units of DBP were directly aligned with the measurement outcome even though students still needed to transfer their knowledge learned in DBP into a new context—the MAP test. For example, pantomime was integrated into the learning objective of key ideas and details in kindergarten, which directly aligned with the literature and informational subscale. For second and third grade, DBP foci on action verbs and vocabulary also aligned with the vocabulary acquisition and use subscale of the MAP. This alignment of DBP and measurement outcome could facilitate students' transfer of their learning enacted in DBP into the MAP tests.

The study findings revealed that the first-grade children in DBP improved at a lower rate than the comparison group. The lack of uniform differences across subscales hints at the possibility that drama-based reading instruction differentially improves reading subskills, and/or that there are developmental differences (Piaget, 1962). There is also a possibility that first-grade PD teachers implemented DBP with low fidelity, and/or that control group teachers implemented drama-like activities into their classrooms.

In this study, students received DBP from both classroom teachers and TAs. Contrary to Lee et al.'s (2020) meta-analysis results, we found that DBP was effective when led by both a

classroom teacher and a TA. Drama Frames PD may differ from other applications of DBP in two unique ways. First, teachers developed their knowledge about DBP strategies and then were provided careful scaffolding from the teaching artists to integrate DBP into their ELA curricula. Second, the collaborative nature of Drama Frames encourages teachers and TAs to combine their expertise. In other words, the Drama Frames PD does not impose an instructional approach upon teachers. Overall, these results have theoretical and practical implications.

Theoretical Implications

Embodied cognitive theories propose that cognitive processes are linked to the body and its interactions with the environment (Barsalou, 1999; Glenberg & Robertson, 2000). Thus, learning is enhanced when students engage in learning processes that promote physical activity (e.g., Glenberg & Robertson, 2000; Marley & Szabo, 2010). One of the main components of DBP is physical engagement that encourages "real and imagined viewpoints through body" (Dawson & Lee, 2018, p. 20). This study contributes to the embodiment technique of actively experiencing literature by showing that students in the DBP group had opportunities to connect a text's meaning, explore its characters and points of view, and understand the meaning of new words with their bodies by using various drama strategies. For example, in a Drama Frames team lesson focused on structured improvisation and pantomime, the teaching artist was in the role of a famous choreographer who was asked to create a dance about the Milky Way. She described that the scientists had given her a text about it, but there were many words that she did not understand. She positioned students as "expert reading detectives" who could help her figure out the meaning of the unknown words and help her create a dance. Using context clues, students identified the meaning of the words and individually created a dance representing the meaning of the words (i.e., absorbed and constellation). Then the teaching artist highlighted some students' dance, had all students try out the chosen movement, and unpacked how movement represented the word's meaning. The study findings revealed that the type of embodied experiences that DBP offered enhanced kindergarten, second, and third-grade students' reading outcomes at least in one subcategory.

The study findings also contribute to understanding the embodiment technique of active experiencing. Berenhaus et al. (2015) found that while indexing benefited "poorer comprehenders," the active experiencing embodiment technique benefited the story recall of students considered both "poor and skilled comprehenders." This finding was interpreted to indicate that active experiencing requiring more complex skills than solely making referential connections between visual and verbal modalities (Berenhaus et al., 2015; Glenberg et al., 2007). Considering that DBP and active experiencing are analogous, future studies could explore the impact of DBP on the reading outcomes of students at different reading skill levels.

Practical Implications

The results of this quasi-experimental study demonstrate the potential positive impact of DBP on student reading achievement. The results have several practical implications for school districts, classroom teachers, and teacher educators. First, school districts can build collaborations with local theatre organizations to provide PD about DBP to classroom teachers, similar to the Drama Frames PD program. DBP PD programs should be provided over extended periods of time, considering that the long duration of the DBP intervention positively influenced student academic outcomes. Second, classroom teachers can integrate drama strategies to enhance student language arts learning. The second graders' improvement in reading scores in all subscales of MAP could imply that the drama strategies—tableau, pantomime, and structured improvisation—could be utilized by teachers. For example, tableau can be integrated into teaching possessive and plural words. Students in groups can create a tableau representing a given statement (e.g., the boys bike and the boy's bike).

Lastly, teacher education programs should consider integrating DBP into their curricula through classes, seminars, workshops, or guest lecturers. Teacher education courses specifically focused on teaching strategies could integrate DBP into the syllabus to develop preservice teachers' understanding and skills in using DBP in their classroom. Interdisciplinary collaborations can also be made between teacher education programs, theatre departments, local theatre or drama organizations, and schools to provide rich drama experiences to preservice teachers to enhance their future instructional practices.

Strengths and Limitations

As with all educational research, the present study has strengths and limitations. In terms of strengths, there are two that are notable. First, the PD took place in authentic classrooms providing ecological validity evidence. Second, the students were assessed on the MAP test, a commonly used standardized measure of reading achievement. These two aspects of the study improve the generalizability of the findings. However, there are important limitations to the study that future studies should address. First, teacher characteristics were not available, limiting our ability to determine whether teacher characteristics moderate the effectiveness of DBP on student reading performance. Second, the classrooms were not randomly assigned to the Drama Frames and comparison groups. The quasi-experimental design of the study limits our ability to make a strong causal claim regarding the effectiveness of this promising PD.

References

Adomat, D. S. (2012). Drama's potential for deepening young children's understandings of stories." *Early Childhood Education Journal, 40*(6), 343-350.

Apthorp, Helen S. (2006). Effects of a Supplemental Vocabulary Program in Third-Grade Reading/Language Arts. *The Journal of Educational Research, 100*(2), 67–79. https://doi.org/10.3200/JOER.100.2.67-79

Band, Susan Ann, Jonothan Neelands, G. L. & Freakley, V. (2011). Disabled students in the performing arts–are we setting them up to succeed?. *International Journal of Inclusive Education*, *15*(9), 891-908. https://doi.org/10.1080/13603110903452903

Barsalou, L. W. (1999). Perceptions of perceptual symbols. *Behavioral and Brain Sciences*, *22*(04), 637–660. https://doi.org/10.1017/S0140525X99532147

Berenhaus, Molly, Oakhill, J., & Rusted, J. (2015). When kids act out: a comparison of embodied methods to improve children's memory for a story. *Journal of Research in Reading*, *38*(4), 331–343. https://doi.org/10.1111/1467-9817.12039

Biau, E., & Soto-Faraco, S. (2013). Beat gestures modulate auditory integration in speech perception. *Brain and Language*, *124*(2), 143–152. https://doi.org/10.1016/j.bandl.2012.10.008

Bohrnstedt, G., Kitmitto, S., Ogut, B., Sherman, D., & Chan, D. (2015). School Composition and the Black–White Achievement Gap (NCES 2015-018). U.S. Department of Education, Washington, DC: National Center for Education Statistics. http://nces.ed.gov/pubsearch

Brown, S. (2007). Research Review: Principles of possibility—Considerations for a 21st-century art & culture. *Teaching Artist Journal,* (4), 306-313.

Catterall, J. S., Dumais, S. A., & Hampden-Thompson, G. (2012). The Arts and Achievement in At-Risk Youth: Findings from Four Longitudinal Studies. Research Report# 55. *National Endowment for the Arts*. https://www.arts.gov/sites/default/files/Arts-At-Risk-Youth.pdf

Cooper, L. A. (2005). *The effects of dramatic activity on third grade students: Acquisition of vocabulary words within the visual arts classroom*. (Unpublished doctoral dissertation). Arizona State University.

Dawson, K., & Lee, B. K. (2018). *Drama-based pedagogy: Activating learning across the curriculum*. Intellect Books.

Edmiston, B. (2007). Mission to Mars: Using drama to make a classroom more inclusive for literacy learning. *Language Arts, 84*(4), 337-346. https://www.jstor.org/stable/41962202

Garvis, S. & Pendergast, D. (2011). An investigation of early childhood teacher self-efficacy beliefs in the teaching of arts education. *International Journal of Education & the Arts, 12*(9): 1-15. http://www.ijea.org/v12n9/

Garvis, S., & Pendergast, D. (2011). An investigation of early childhood teacher self-efficacy beliefs in the teaching of arts education. *International journal of education & the arts,* 12(9),1-15. http://www.ijea.org/v12n9/

Glenberg A.M., Brown, M. & Levin, R. J. (2007). Enhancing comprehension in small reading groups using a manipulation strategy. *Contemporary Educational Psychology, 32*(3), 389–399. doi:10.1016/j.cedpsych.2006.03.001

Glenberg, A. M., & Robertson, D. A. (2000). Symbol grounding and meaning: A comparison of high-dimensional and embodied theories of meaning. *Journal of Memory and Language,* 43(3), 379–401. https://doi.org/10.1006/jmla.2000.2714

Glenberg, Arthur M., Gutierrez T., Levin, J. R., Japuntich, S. & Kaschak, M. P. (2004). Activity and imagined activity can enhance young children's reading comprehension. *Journal of Educational Psychology, 96*(3), 424–436. https://doi.org/10.1037/0022-0663.96.3.424

Greenfader, C. M., & Brouillette, L. (2013). Boosting language skills of English learners through dramatization and movement. *The Reading Teacher, 67*(3), 171–180. https://doi.org/10.1002/TRTR.1192

Greenfader, C. M., Brouillette, L., & Farkas, G. (2014). Effect of a performing arts program on the oral language skills of young English learners. *Reading Research Quarterly, 50*(2), 185-203. https://doi.org/10.1002/rrq.90

Iverson, J. M., & Goldin-Meadow, S. (2005). Gesture paves the way for language development. *Psychological Science, 16*(5): 367–371. doi: 10.1111/j.0956-7976.2005.01542.x

Joseph, A. R. (2013). *The effects of creative dramatics on vocabulary achievement of fourth grade students in a language arts classroom: An empirical study* (Unpublished doctoral dissertation). Seattle Pacific University.

Kilinc, S. Farrand, K., Chapman, K., Kelley, M. F., Millinger, J., & Adams, K. (2017). Expanding opportunities to learn to support inclusive education through drama-enhanced literacy practices. British Journal of Special Education, 44(4), 431-447. https://doi.org/10.1111/1467-8578.12186

Kilinc, S. Kelley, M. F., Adams, K., & Millinger, J. (2016). Early years educators at play: A research-based early childhood professional development program. Childhood Education, 92 (1), 50-57. https://doi.org/10.1080/00094056.2016.1134242

Kuhn, L. J., Willoughby, M. T., Wilbourn, M. P., Vernon-Feagans, L., & Blair, C. B. (2014). Early communicative gestures prospectively predict language development and executive function in early childhood. *Child Development, 85*(5), 1898–1914.

Lee Nardo, R., Custodero, L. A., Persellin, D. C., & Fox, D. B. (2006). Looking back, looking forward: A report on early childhood music education in accredited American preschools. *Journal of Research in Music Education,* 54, 278-292. https://doi.org/10.1177/002242940605400402

Lee, B. K., Enciso, P., & Brown, M. R. (2020). The effect of drama-based pedagogies on K-12 literacy-related outcomes: A meta-analysis of 30 years of research. *International Journal of Education & the Arts, 21*(30). http://doi.org/10.26209/ijea21n30

Lee, B. K., Enciso, P., & Sharp, J. (2019). Walking with the words: Student motivation toward reading and studying Shakespeare's plays through rehearsal room practices. *Youth Theatre Journal, 33*(1): 70-88. doi: 10.1111/cdev.12249

Lee, B. K., Patall, E. A., Cawthon, S. W., & Steingut, R. R. (2015). The Effect of Drama-Based Pedagogy on PreK–16 Outcomes. *Review of Educational Research, 85*(1), 3–49. https://doi.org/10.3102/0034654314540477

Marley, S. & Szabo, Z. (2010). Improving Children's Listening Comprehension with a Manipulation Strategy. *The Journal of Educational Research, 103*(4), 227-238. https://doi.org/10.1080/00220670903383036

Marley, S. C., & Carbonneau, K. J. (2015). How psychological research with instructional manipulatives can inform classroom learning. *Scholarship of Teaching and Learning in Psychology, 1*(4), 412–424.

Marley, S., Levin, J. R., & Glenberg, A. M. (2007). Improving Native American children's listening comprehension through concrete representations. *Contemporary Educational Psychology, 32*, 537–550. https://doi.org/10.1037/stl0000047

Mayor, M. L. (2013). How they decide: A case study examining the decision-making process for keeping or cutting music in a K–12 public school district. *Journal of Research in Music Education, 61*(1) 5–25. https://doi.org/10.1177/0022429412474313

Morrison, R. (2021). Arts Education Data Project Report, Arizona. https://azarts.gov/wp-content/uploads/2021/06/AZ-Arts-Ed-Report-2019-20-FINAL.pdf

Nathan, M. J. & Martinez, C. V. (2015). Gesture as model enactment: the role of gesture in mental model construction and inference making when learning from text. *Learning: Research and Practice, 1*(1), 4-37. doi: 10.1080/23735082.2015.1006758

National Center for Education Statistics. (2011). Achievement gaps: How Hispanic and White students in public schools perform in mathematics and reading on the national assessment of educational progress. https://nces.ed.gov/nationsreportcard/pdf/studies/2011485.pdf

Northwest Evaluation Association. (2011). Technical Manual for Measures of Academic Progress -&- Measures of Academic Progress for Primary Grades. https://www.richland2.org/RichlandDistrict/media/Richland-District/AdvancED/Standard%205/5.1/5-1-NWEA-Technical-Manual-for-MAP-and-MPG.pdf

Northwest Evaluation Association. (2019). MAP Growth, MAP Growth K–2: RIT Reference. https://cdn.nwea.org/docs/RIT+Reference+Brochure_July19_CC.pdf

Piaget, J. (1962). *Play, dreams, and imitation in childhood.* (C. Cattegno, F. M. Hodgson Trans.). W. W. Norton & Company Inc.

Podlozny, A. (2000). Strengthening verbal skills through the use of classroom drama: A clear link. *Journal of Aesthetic Education, 34*, 239–275. https://doi.org/10.2307/3333644

Quinn, Jamie M., Wagner, R. K., Petscher, Y. & Lopez, L. (2015). Developmental Relations Between Vocabulary Knowledge and Reading Comprehension: A Latent Change Score Modeling Study. *Child Development, 86*(1): 159–75. https://doi.org/10.1111/cdev.12292

Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, and apprenticeship. In J.V. Wertsch., P.D. Rio, and A. Alvarez (Eds.), *Sociocultural studies of mind, (pp.* 139-163). Cambridge: Cambridge University Press.

Shaw, Ryan D. (2018). The vulnerability of urban elementary school arts programs: A case study. *Journal of Research in Music Education 65*(4), 393-415. https://www.jstor.org/stable/48588720

Swanson, Elizabeth, Stevens, E. A., Scammacca, N. K., Capin, P., Stewart, A. A., & Austin, C. R. (2017). The Impact of Tier 1 Reading Instruction on Reading Outcomes for Students in Grades 4–12: A Meta-Analysis. *Reading and Writing, 30*(8): 1639–65. https://doi.org/10.1007/s11145-017-9743-3

The National Assessment of Educational Progress. (2019). National Achievement-Level Results. https://www.nationsreportcard.gov/reading/nation/achievement/?grade=4

Trowsdale, J., & Hayhow, R. (2015). Psycho-physical theatre practice as embodied learning for young people with learning disabilities. *International Journal of Inclusive Education, 19*(10), 1022-1036, doi: 10.1080/13603116.2015.1031832

Wagner, B. J. (2002). Understanding drama-based education. In G. Brauer (Ed.), *Body and language: Intercultural learning through drama*, (pp. 3-18). Ablex Publishing.

Woodall, W. G., & Folger, J. P. (1985). Nonverbal cue context and episodic memory: on the availability and endurance of nonverbal behaviors as retrieval cues. *Communication Monographs, 52*(4), 319–333. https://doi.org/10.1080/03637758509376115

About the Authors

Sultan Kilinc is an assistant professor in the Department of Teaching and Leadership at Syracuse University. My research agenda focuses on three interconnected areas: 1) inclusive education conceptualizations and practices for historically marginalized students, including students with disabilities, refugee students, and dual language learners, 2) dual language education to promote inclusive and just education opportunities for bi/multilingual students with and without disabilities, and 3) drama-based pedagogy to support inclusive learning opportunities for all students.

Scott C. Marley is an associate professor in Mary Lou Fulton Teachers College at Arizona State University. His research examines the efficacy of cognitive theory-based learning strategies.

Michael F. Kelley is an associate professor in Mary Lou Fulton Teachers College at Arizona State University. His research interests lie in understanding the structural and process features related to high quality professional development experiences for early childhood teachers that effectively impact child outcomes.

Jenny Millinger is the Associate Artistic Director for Childsplay, where she specializes in new project development for artistic and education programs. Millinger has led the design and implementation of multi-year research-based projects focused on drama/literacy integration, with an emphasis on job-integrated professional development for pre-k through 6th grade teachers.

International Journal of Education & the Arts

http://IJEA.org ISSN: 1529-8094