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Play and Early Literacy: An Analysis of Kindergarten Children's Scaffolding During Symbolic Play Transformations

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Abstract

This study analyzes the scaffolding of symbolic transformations by kindergarten children during socio-dramatic play. Fifteen hours of free play at a home center were videotaped. The symbolic transformations were identified and coded by type and social context from detailed transcripts. The results of this study suggest that play environments, such as the home center, provide a collaborative social context that facilitates the engagement of children in simple to complex symbolic play transformations, highlighting the importance of informal, social play contexts for enhancing symbolic play transformations as a precursor to literacy development.

The purpose of this study is to examine the social context, amount and types of scaffolding used by kindergarten children, and scaffolding outcomes during symbolic transformations made in a play home center. Do informal, social, play contexts such as the home center support simple to complex symbolic play transformations? Is there evidence that children scaffold symbolic transformations for each other during play? What types of scaffolding are successful in engaging children in simple to complex symbolic play transformations? This study highlights the importance of informal, social play contexts in the development of symbolic transformations, simple to complex, for the development of representational thought, a necessary component in literacy development, and the important role children play in scaffolding this development for one another.

Theoretical Framework

Vygotsky (1976) envisioned a “zone of proximal development,” the distance between the actual development of the child and the level of potential development that can be enhanced by adults or more capable peers. In the context of social interactions, adults or more capable peers can “stimulate the children to use more sophisticated approaches to tasks . . . through the process of ‘scaffolding’” (Meltzer, 1991, p. 179). Meltzer suggested that adults or more capable peers can give children temporary support, which helps them accomplish tasks beyond their current independent capabilities.

In a problem-solving context, a number of researchers have found that the “scaffolding” process, through social interactions or collaboration, significantly impacts the child’s problem-solving ability (Brown & Kane, 1988; Lester, 2004; Tudge & Caruso, 1989). Research (Frey & Kaiser, 2011) has shown that adult intervention within children’s play can increase the diversity and complexity of symbolic object play for young children with disabilities. However, no research to date has investigated the types and effects of scaffolding of symbolic play transformations used by children. Children can play a crucial role in collaborating with peers within their zone of proximal development (Broadhead, 2006) in enhancing symbolic representations for each other. Understanding the roles children engage each other in symbolic transformations can provide support for providing rich, social play environments for children. Observations of children’s play interactions with symbolic play can illuminate children’s learning processes and how they support and scaffold naturally for each other’s learning needs (Broadhead, 2006).

The appearance of symbolic play is considered one of the most significant cognitive developments of the young child. Symbolic play, along with deferred imitation and language, signals the development of representational thought. The key importance of representational thought is that the child is now able to represent objects and events *symbolically*. Symbolic play is the “assimilative process, which enables children to practice at symbolically representing objects and events” (Pellegrini, 1985, p. 80). With the advent of symbolic play, the child progresses through the play until it becomes more decontextualized. Object substitutions become more abstract and the play becomes more social. The progression peaks during the preschool and early primary years and declines during the middle childhood years. This process provides an important source for literacy development. Both literacy and symbolic play require the “ability to use words, gestures or mental images to represent actual objects, events or actions” (Isenberg & Jacobs, 1983, p. 272). Symbolic play, from a relational standpoint, provides a foundation for literacy development. The very nature of symbolic play (first-order symbolism) has an intimate relationship with reading and writing (second-order symbolism) in that children

use a similar representation mental process in both. Vygotsky theorized that symbolic play enables children to develop a variety of represented meanings that serve as a basis for successful literacy development. Children progress in representing the world abstractly through play, as a banana “stands for” or “represents” a phone, a child “stands for” or “represents” a character, or a gesture or word “stands for” or “represents” an object or event. Representation is the process for developing abstract thought. Symbolic play transformations allow and support the development of abstract thought. Without abstract thought, children would not be able to represent the world symbolically such as using drawings for objects, letters for sounds, or multiple letters for words. The hierarchy of development begins with symbolic play transformations.

This study analyzes the social context, amount and types of scaffolding of three types of symbolic transformations among kindergarten children, and the outcomes from the scaffolding. The first type of symbolic transformation is *object transformations or substitutions* where a child imagines properties or gives identities to objects. The second transformation is *roles*: functional (organized by object or activity), relational (i.e., mother/child), character (i.e., fireman/Superman), and peripheral (not enacted – real or imaginary roles). The third symbolic transformation is *ideational* where the child uses language, gestures or mental images (independent of objects) to create the fantasy (Copple, Cocking, & Matthews, 1984). Ideational transformations are more complex than object or role transformations, as the child is now able to represent objects and events *symbolically*.

The study addressed the following questions:

1. Do informal play contexts, such as the home center, provide the social context for children to scaffold symbolic play transformations for each other?
2. Do kindergarten children scaffold symbolic play transformations for one another?
3. What types and amount of scaffolding are used by kindergarten children during symbolic play transformations?
4. What are the outcomes of the scaffolding types used?

Methods

This qualitative study used a combination of observational and quantitative methods to analyze the data.

Data Source

The subjects consist of all the students in a kindergarten classroom. The class was composed of 22 children (10 male, 12 female). The children were from low-income families and represented diverse ethnic backgrounds, including African American, Anglo, Hispanic, Pacific Islander, Indian, and Native American. The teacher was a veteran of 18 years who had taught in self-contained kindergarten and primary grade classrooms classrooms (Christie & Stone, 1999; Stone & Christie, 1996).

The language arts approach was similar to New Zealand classrooms with maximum class time for literacy strategies such as shared book, modeled writing, and guided reading. Daily, open-ended choice centers were utilized during guided reading. At this time, play centers were also available for children to choose, including the home center. The length of time at centers was approximately 1 hour in the morning. The home center was partially partitioned off from the rest of the classroom and contained play furniture and domestic props. Books and writing

materials were also available. A maximum of four children were allowed to play in the center at one time.

A total of 15 hours of free play in the home center were videotaped over a period of four weeks during April and May. The camera was positioned so that it covered most of the area in the home center. The teacher turned on the video camera at the beginning of the free-choice period and turned it off at the completion of the period. There was no manipulation of, or intervention in, the play sequences created by the children.

A detailed transcript of 477 typed pages was made of the action and dialogue that occurred in the home center during each session. A total of 41 different groups of children chose to play in the home center. The same participants who played continually together (until a new group of players attended the home center) were identified as a playgroup. Each playgroup consisted of three to four players. Ten of the 41 playgroups were analyzed for this study. Group size did not impact the study's outcome.

First, the symbolic transformations were coded by social context (solitary, parallel or collaborative). Next, the transcripts were analyzed for the three types of symbolic transformations (roles, object, ideational). As peer scaffolding occurred, scaffolding categories were identified. The provider, recipient, type of scaffolding and the outcomes were coded. Relationships among the coding variables were examined. Coding categories were refined during the process. Finally, the data from the coding sheets were sorted in various ways in order to determine frequency counts for the different categories and to search for relationships between categories.

Results

Composition of Play Groups

For this study, 10 kindergarten playgroups were analyzed for social context, type and amount of transformations, types of scaffolding, and scaffolded outcomes during symbolic transformations. Scaffolding of symbolic play transformations occurred in all 10 playgroups (randomly selected).

Social Context

Symbolic transformations occurred in three social contexts:

1. Solitary – symbolic transformations were conducted independent of other children.
2. Parallel – symbolic transformations were conducted jointly with one or more other peers but no help is given.
3. Collaborative – a child helps a peer engage in symbolic transformations.

A frequency table was used to analyze the social context.

Table 1. Social Context Frequency Counts

K Play Groups	Solitary	Parallel	Collaborative
Play Group 1	6	10	78
Play Group 2	0	3	2
Play Group 3	0	5	80
Play Group 4	0	5	52
Play Group 5	1	16	82
Play Group 6	0	9	72
Play Group 7	4	0	20
Play Group 8	0	31	78
Play Group 9	0	11	119
Play Group 10	2	11	47
Total	13	101	630

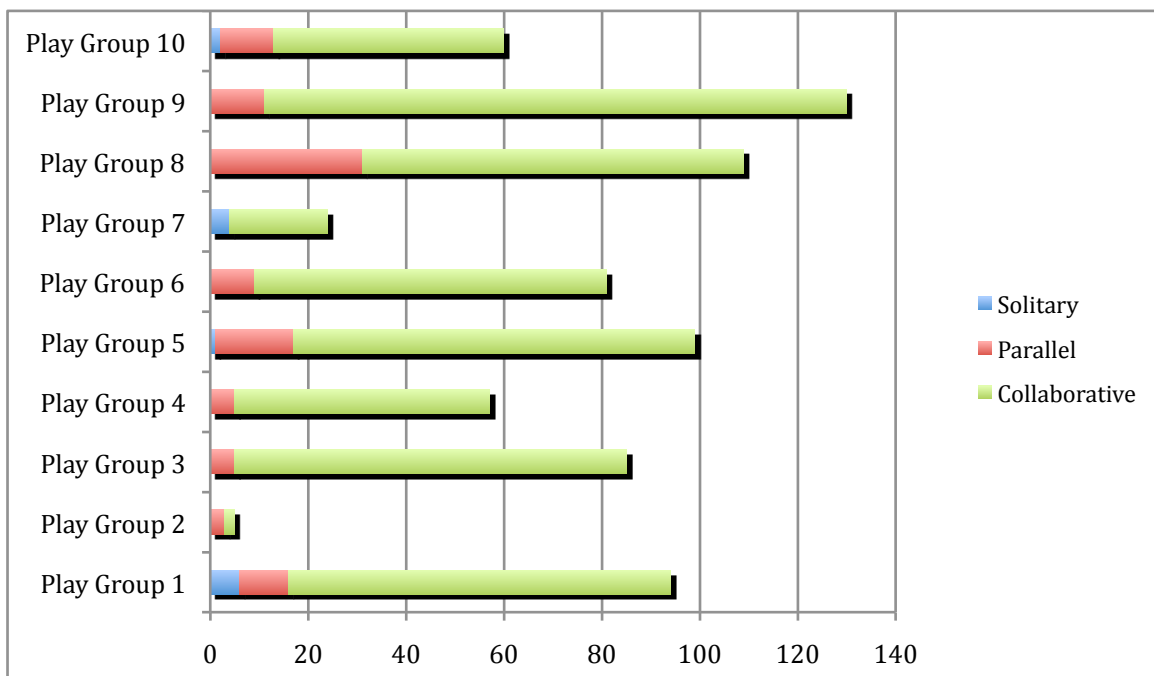


Figure 1. Social Context Frequencies

Collaborative play (630 events) was by far the most common context for symbolic transformations, accounting for about 85%. About 14% of the symbolic transformations occurred in parallel situations. Solitary symbolic transformations were rare at 2%.

Symbolic Transformations

Symbolic transformations were categorized as *object*, *role* or *ideational*.

Object transformation is exhibited in the script below. Renee directs Nina to wear gloves for surgery (Directing strategy). Outcome: Engaged.

Renee: Put your real gloves on.
 Nina: Where are they?
 Renee: I'll go get them.

(Renee gets paper and traces around Nina's hand to transform the paper into a paper glove.)

The script excerpt below shows *role transformations* as Renee scaffolds the role transformation for Shauna through the Directing strategy. Nina transforms herself into the role of doctor. Outcome: Engaged.

Renee: Tell your mom that you have to take (a pill).
 Shauna, you're not her uncle. You're her mom.
 And I'm sick. Tell your mom (to Nina) that you
 have to take . . .
 Nina: No, I'm a doctor.
 Renee: Okay.

Ideational transformation occurs as Danny presents the idea of moving in the script below. The transformation is not dependent on objects or activities. Danny is scaffolding by Directing. The outcomes are disengaged and engaged.

Shaun: I'm Holly's kitty cat.
 Danny: And act like we moved.
 Holly: You're our cat!
 Danny: And act like we moved. Holly! And act like we
 moved.
 Holly: No, I said, "No."
 Danny: Can we move? Because, because I said so.
 Holly: No.
 Danny: Fine, then me and my kitty cat are moving!
 Holly: Okay (nonchalantly).

Table 2 displays the type and amount of symbolic transformations made by children in the 10 playgroups.

Table 2. Symbolic Transformations Frequency Counts

K Play Groups	Object	Role	Ideational
Play Group 1	37	16	13
Play Group 2	5	2	0
Play Group 3	41	22	26
Play Group 4	42	9	9
Play Group 5	81	11	8
Play Group 6	58	23	4
Play Group 7	10	11	6
Play Group 8	86	12	14
Play Group 9	83	15	35
Play Group 10	51	8	1
Total	494	129	116

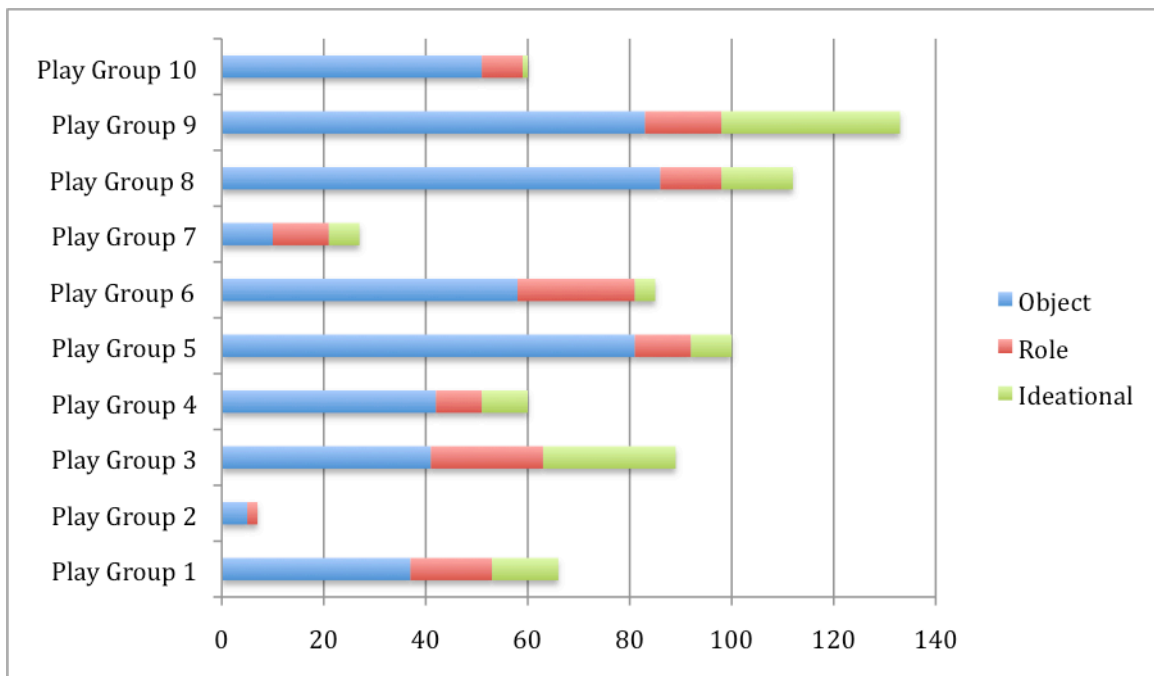


Figure 2. Symbolic Transformation Frequencies

Symbolic Transformations

There were 739 symbolic transformations in the 10 kindergarten playgroups. *Object transformations* (494) were the most common for the kindergartners, accounting for 67% of all transformations. *Object transformations* varied from 5-86 per playgroup, averaging about 49 transformations per playgroup.

Role and *ideational transformations* were comparable with 17% for roles and 16% for ideational. *Role transformations* varied from 2-23, averaging about 13 transformations per playgroup. *Ideational transformations* varied from 0-35, averaging about 12 transformations per playgroup.

Scaffolding Types

To help peers engage in symbolic transformations, the children used five different types of scaffolding.

1. Modeling – demonstrating a symbolic transformation with words or actions.
2. Inviting – asking peers to join in a symbolic transformation
3. Assisting – helping peers to engage in a symbolic transformation.
4. Directing – telling a peer to engage in a symbolic transformation.
5. Negotiating – attempting to establish agreement with a peer on a symbolic transformation.

Amount of Scaffolding

Object and *role transformations* were evident in all 10 playgroups. *Ideational transformations* were identified in nine of the 10 playgroups. All transformations were analyzed for the types and amount of scaffolding.

Table 3. Transformations and Scaffolding Types

Types of Transformations	Scaffolding Types				
	Modeling	Inviting	Assisting	Directing	Negotiating
Object	215	41	3	64	14
Roles	44	14	0	46	5
Ideational	53	20	1	29	3
Total	312	75	4	139	22

Modeling was the predominate strategy used across all three types of transformations with 57%, followed by Directing with 25% and Inviting with 14%. Negotiating and Assisting were minimally used at 3% and less than 1%.

Object transformations resulted in 215 transformations using the modeling strategy. Modeling accounted for 64% of all *object transformations*. Directing was used 19% of the time, and Negotiating and Assisting were 4% and less than 1% of all *object transformations*.

Kindergarteners used Directing (46) and Modeling (44) as the most frequently used strategies for *role transformations*, resulting in 42% and 40%. Inviting was used 13% of the time, Negotiating 5%, and Assisting was not used at all.

For *ideational transformations*, the most frequently used strategy was Modeling (53) at 50% followed by Directing (29) at 27%. Inviting was used 19% of the time and Negotiating (3%). Assisting (less than 1%) was used minimally.

Outcomes of Scaffolding Types

Categories for scaffolding types were coded for each type of transformation. Five outcome types were identified for *object transformations*:

1. Engages – child actually participates in scaffolded transformation.
2. Observes – child observes but does not participate in scaffolded transformation.
3. Responds – child accepts the scaffolded transformation, but does not engage.
4. Ignores – child ignores the scaffolded transformation.
5. Disengages – child stops playing.

Five outcome types were identified for *role transformations*:

1. Accepts – child accepts/acknowledges scaffolded role but does not engage.
2. Declines – child does not accept scaffolded role.
3. Engages – child transforms into scaffolded role.
4. Ignores – child ignores the scaffolded role.
5. Disengages – child stops playing.

Four outcome types were identified for *ideational transformations*:

1. Engages – child participates in scaffolded transformation.
2. Observes – child observes but does not participate in scaffolded transformation.
3. Ignores – child ignores the scaffolded transformation.
4. Disengages – child stops playing.

Table 4. Outcomes of Scaffolding Types

Object Transformations

Scaffolding Types

	Total Number	Engage	Observe	Respond	Ignore	Disengage
Modeling	215	120	89	17	18	6
Inviting	41	25	5	8	5	2
Assisting	3	2	0	0	0	1
Directing	64	43	16	5	3	3
Negotiating	14	8	2	2	2	0

Role Transformations

Scaffolding Types

	Total Number	Accept	Decline	Engage	Ignore	Disengage
Modeling	44	42	6	6	9	2
Inviting	14	20	3	1	0	0
Assisting	0	0	0	0	0	0
Directing	46	27	7	4	11	1
Negotiating	5	2	2	1	0	0

Ideational Transformations

Scaffolding Types

	Total Number	Engage	Observe	Ignore	Disengage
Modeling	53	27	38	9	0
Inviting	20	18	1	2	0
Assisting	1	1	0	0	0
Directing	29	25	4	4	1
Negotiating	3	3	0	0	1

For *object transformations*, Modeling was the most used strategy (215 occurrences) that resulted in children engaging in 120 scaffolded transformations, about 56% of the time. Directing was the

next most used strategy with 64 attempts and 43 engagements at 67% of the total scaffolded strategy. Inviting was also a successful strategy with 25 out of 41 attempts resulting in engagement in the *object transformation*, about 67% of the time. Assisting was the least used strategy with only 3 attempts, which resulted in 2 engagements at 67%. All strategies resulted in varying degrees of engagement with minimal non-engagement outcomes of ignoring or disengagement.

For *role transformations*, Directing was the most used strategy followed closely by Modeling. However, Modeling was the most successful in children engaging in the 44 scaffolded transformations, about 95% of the time. Directing occurred in 27 out of 46 attempts, resulting in 59% of the time. Inviting (14), while not a frequently used strategy, did result in one-and-a-half times more children (20) engaging in the transformation.

Modeling (53 attempts) was the most frequently used strategy for *ideational transformations* followed by Directing (29 attempts). Modeling resulted in 51% engagement, while Directing resulted in 86% engagement. Directing, while not used as frequently as Modeling, was a more successful strategy to engage children in *ideational transformations*. Inviting was also a highly successful strategy resulting in 90% engagement even though it was not the most used strategy. Negotiating and Assisting were minimally used strategies but resulted in 100% engagement.

Conclusion

Vygotsky (1978) suggested that “an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of developmental processes that are able to operate only when the child is interacting with people in his environment and in collaboration with his peers” (p. 90). With this viewpoint, playgroups provide a natural, social context for experts and novices to interact. Although experts and novices were not identified in this same-age grouping research, it is assumed that some children were experts and some novices in the types of transformations and strategy use. With the development of symbolic play transformations ranging from simple *object transformations* to complex *ideational transformations*, experts and novices had the rich opportunity to scaffold learning for one another. As a child’s abstract or representational thought varies so does the directionality of the zone. Tudge and Winterhoff (1993) found that the relationship of partners in the zone was not unidirectional; both children changed in the course of interaction, gaining new understandings through collaboration. In the course of developing more abstract thought through symbolic play transformations, all participants in the play appeared to benefit.

With the vast majority of transformations occurring in the collaborative context (630) 85% of the time, one can see the social benefit of playgroups. Question 1, “Do informal play contexts provide the social context for children to scaffold symbolic play for one another?” is answered. Findings confirm the astounding number of transformations in 10 playgroups, amounting to 739 symbolic transformations. The number of transformations also underscores the importance of social context and play for symbolic transformations to thrive. Children practice and scaffold transformations for one another as they play, providing an avenue for continued development of abstract thought with frequency and ease.

In general, kindergarteners use lower level transformations the most, *objects* and then *roles*. *Ideational* is the more complex transformation because children do not use or need a prop to hang onto the meaning. Their abstract thought is now held entirely in their brains without the temporary support of a concrete object or activity to separate meaning from the object (Vygotsky, 1976). *Ideational transformations* are significant in the hierarchy of symbolic

transformations. Perhaps as children develop with age, *role* and *ideational transformations* may become more prevalent in their play. More research is needed in this area.

Question 2 asked, “Do kindergarten children scaffold symbolic play transformations for one another?” Different types of scaffolding were found in all collaborative play. Five different types of scaffolding were identified through the coding of the playgroups.

Question 3 asked, “What types and amount of scaffolding are used by kindergarten children during symbolic play transformations?” The five types were: Modeling, Inviting, Assisting, Directing, and Negotiating. For *object transformations*, children relied heavily on the strategy of Modeling which demands less of the child in terms of interaction or leadership, whereas Directing and Inviting demand more social interaction and leadership. Interestingly, Directing was the strategy used the most for determining *roles* in the playgroup, closely followed by Modeling. *Ideational* scaffolding relied mostly on the Modeling strategy, followed by Directing and then Inviting. Again, Modeling appears to be an easier strategy for kindergartners to use. Perhaps as children become more competent socially with age, they are more apt to use more socially direct strategies. In the reverse, as children become more competent in transformations with age, they may engage in more direct strategies such as Inviting and Directing. More research is needed in this area.

“What are the outcomes of the scaffolding types used?” was asked for Question 4. For *object transformations*, Modeling and Inviting were the strategies that resulted in the most engagement by the recipients of the strategy. Directing was the most used strategy for *role transformations*, but Modeling was the most successful in engaging recipients in the transformations. Directing and Inviting were the most successful strategies for *ideational transformations*, although Modeling was the most frequently used strategy.

Scholarly Significance

The results of this study suggest that play environments, such as the home center, provide a collaborative social context that facilitates and supports the engagement of children in simple to complex symbolic play transformations (precursor to literacy development), highlighting the importance and effectiveness of informal, social play contexts in the development of representational thought as opposed to “academic environments” void of play (Stone & Christie, 1996). Children use all three types of symbolic representation: *object*, *roles*, and *ideational*. This study also confirmed that children do use different strategies to engage one another in play transformations in the home center, and they are highly successful in doing so. Children naturally support each other in the development of symbolic transformations. Through understanding this process of learning, social play environments can be strengthened to offer more opportunities for children to become skillful at scaffolding and engaging one another in symbolic transformations, thus strengthening their individual abilities for representation and abstract thought and becoming skillful in using symbolic systems leading to literacy development. Future research could examine how the expert and novice roles of the children change over time. Are the roles interchangeable? Do individual children change in their use of transformations over time?

Next, this study will be compared to a previous study on “An Analysis of Mixed-age (K-2) Children’s Scaffolding During Symbolic Play Transformation.” Increasing expert players in young children’s play may impact all learners, particularly as symbolic play transformations perform a foundational role in literacy development. Findings could support transforming educational, social play environments by deliberately embracing the concept of mixed-age

players to increase the diversity of the social nature of learning with experts and novices regarding more and increasingly complex symbolic play transformations.

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