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2017

Female Superiority in Social Cognition: Can Pretend Play Help the Boys Catch Up?

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Recommended Citation

FEMALE SUPERIORITY IN SOCIAL COGNITION: CAN PRETEND PLAY HELP THE BOYS CATCH UP?

by

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SUBMITTED TO SCRIPPS IN PARTIAL FULFILLMENT OF THE DEGREE OF BACHELOR OF ARTS

PROFESSOR WALKER

PROFESSOR GROSCUP

DECEMBER 9, 2016

ABSTRACT

The effect of pretend play on 150 ($\sim$ 75 girls; 75 boys; *M=3 yro*) preschool children's social cognition will be assessed through a semester long intervention study. Research has reported a trend of female superiority in empathy and ToM *and* a likelihood of young girls to engage in pretend play more frequently and to a higher degree than young boys. Previous research has also found a relationship between play and social cognition, as through the act of imagination, one is able to thoroughly take on the perspectives of someone other than the self. This study attempts to show a shift in these mental capabilities after an extensive engagement in pretend play (more than seen in a typical preschool classroom). Boys are expected to reach equal levels of ToM and empathy of their female peers after the intervention. This study attempts to hopefully find an intervention to instill higher levels of empathy in developing children and to support the need for more creative free play in the classroom.

Keywords: Theory of Mind, empathy, pretend play, imagination, gender differences, child development

INTRODUCTION

Crucial to social understanding and social competence, especially in children, social cognition is a core ability to connect with others and view the world from different perspectives. Two major components of social cognition, which will be the subject of this paper, are Theory of Mind (ToM) (ability to recognize others' mental states) and empathy (understanding and sharing another's' feelings) (McInnis, 2014). Though ToM and empathy are widely seen as important aspects of social competence shared across all humans, there

are many individual differences leading one person to develop a "better" Theory of Mind or

be more empathetic than the next. The most drastic of these differences studied is gender,

with many general assumptions suggesting, for example, that women are more empathetic

than men. There is a breadth of research that supports this notion, but also reports an

established inclusivity, especially in regards to children. The proposed study examines

these potential gender differences in children's ToM and affective empathy through an

intervention of fostered pretend play.

Theory of Mind

Simply defined, Theory of Mind (ToM) is a coherent network of interrelated

concepts people use to predict behavior (Lillard et al, 2013). More so, it is the ability to

recognize and infer the full range of another person's mental states (beliefs, desires,

intentions imagination, emotions) and use this knowledge to anticipate and understand

motives underlying their actions and behavior (Baron-Coehn, 2001; Muris et al, 1999). For

the purpose of this paper, ToM will be defined as a mechanism of attributing mental states

to others and using it to understand their behaviors. Thus, it requires complex, theoretical

capacities to enable humans to truly *know* the beliefs and intentions of others (Songhorian,

2013) and is seen as an important precursor to understanding social environments and

engaging in social competent behavior (Wellman, 1990).

In regards to the development of and gender differences within Theory of Mind, the

vast majority of the research has assessed differences between "normally developing"

children and autistic children, as those on the autism spectrum oftentimes experience

deficits in ToM skills and empathy (Dvash & Shamay-Tsoory, 2014). According to research,

typically developing children should showcase beginning skills in Theory of Mind around

age 4 (McInnis, 2014), while those on the autism spectrum might test very poorly in the

same year. While this provides no affirmation towards one gender having more Theory of

Mind than another, the tendency for autism rates to be far higher for males provides some

evidence for a female superiority in Theory of Mind skills. Studies addressing gender

specific differences in ToM communicate inconsistent results, either observing females

outperforming males in ToM tasks or, finding no significant relationships between gender

and ToM (Devine & Hughes, 2013). Interestingly, no studies have found a male superiority.

In a 2013 study with 230 eight to thirteen-year-olds, Devine and Hughes attempted to find

individual differences in Theory of Mind, emphasizing gender. Instead of using typical ToM

tasks (i.e. Happe's Tasks; Wellman & Liu's tasks) researchers had students watch short

silent films to assess their ToM and found significant mean gender differences. As

suggested through past research, after controlling for age, verbal ability, and family

affluence, girls outperformed boys in tasks of Theory of Mind. Despite this finding, more

research is still needed in the area of gender differences around ToM, especially in early

childhood.

Empathy

Similar to Theory of Mind, but an entirely distinct construct, empathy is another

fundamental part of the social foundation of emotion. Empathy can be defined as both (1)

the cognitive awareness of another person's feelings and (2) a vicarious affective response

to another person's feelings (Hoffman, 1977). Though both are considered aspects of

"belief understanding," the difference between ToM and empathy lays in the way these

"understandings," or recognitions, are processed and responded to mentally. If Theory of

Mind is simply the recognition of the mental states (thoughts and feelings) of others,

empathy is then the link between knowing the thoughts and feelings of others, internalizing

them, and responding to them in the appropriate way (Dvash & Shamay-Tsoory, 2014).

Empathy is an intricate cognitive process, and requires a reaction of one individual to the

observed experiences of another.

  In his own research, Hoffman (1977) refers to Macoby and Jacklin's (1974) review

of various studies aiming to explore gender differences in empathy. In a review of 30

empirical studies, as with ToM, there was a general tendency of females to score higher

than males in tests of empathy and empathetic responses in almost all cases. In his own

study, Hoffman (1977) found that females scored significantly higher than males in tests of

empathy and that female infants were significantly more likely to cry in response to

another infant crying (a common test of early empathic recognitions). On the other hand,

he found that males scored significantly higher than women in spatial perspective taking,

consistent with other findings of male superiority in mathematical and organizational

thinking and reasoning (Russell et al, 2007). In the actual recognition of another person's

feelings (defined as ToM in this paper) both males and females were equally able to assess

how a person might feel, but, females were generally more likely to have a vicarious

affective response (empathy) to those feelings of another person. With these findings it is

important to note that it is not necessarily the case that females are cognitively more

advanced in the ability to assess another's inner states, but that they are, for whatever

reason, more able or inclined to imagine themselves in the place of another and thus

trigger an empathetic response (Hoffman, 1977).

  As not all findings were significant, research in this area is still quite inconclusive,

but does provide much evidential speculation towards a female superiority, continuous

throughout the life cycle, in empathy. It must be noted that of course, it is very possible

males are socialized from a young age to be less empathetic; as they are oftentimes

encouraged to shut out their own feelings, they then might shut out those of others as well.

Pretend Play

Also thoroughly researched is the engagement in pretense, the act of pretend

playing or imagining and its positive impact on children's mental development. One of the

most quintessential aspects of childhood, the freedom of pretend play captures the

imaginations of children across all backgrounds to explore, cope with, and expand their

understandings of the social worlds around them. Whether it be through make-believing

home life, survivor, or doctor, children enjoy the luxury of leaving their own physical

worlds behind and entering the complexities of another, in which every movement is in

their control. According to Curran (1999), children engage in play for a number of reasons

potentially unbeknownst to them: play is arousal seeking and an instinctual need to exert

energy; is a preparation of the child for adult behavior; and is a reflection of a child's desire

to produce effects in their environment. Although pretend play has been well researched in

and of itself, its effect on ToM and empathy could benefit from more attention.

As definitions of pretend play (also referred to as role-play, fantasy play, symbolic

play, dramatic play, or pretense) differ across theorists and literatures, the various facets of

said pretend play will be outlined before concluding with an operational definition for the

purpose of this study. Generally, pretend play is accepted as the expression of internal

processes in external actions (Vigotsky, 1976; Stagnitti & Unsworth, 2003), children

participating freely and self-guiding using themes from their perceptions of their social

environments (Gmitrova, Podhajecka, & Gmitrov, 2009). Through pretending, a child

knowingly and intentionally projects a mentally represented thought, feeling, or

understanding onto a present situation (Lillard et al, 2012). Important characterizations of

pretend play involve social dialogues, negotiation, role taking, and improvisation, requiring

a child's ability to symbolically transform objects and actions. Lillard (1993, 2002)

identified six important facets that distinguish pretense from other forms of play: (1) a

pretender; (2) a reality that is clearly omnipresent; (3) mental representation that is

different from reality; (4) projection of a mental representation onto reality; (5) awareness

on the part of the pretender of the previous components; (6) projection of this mental

representation is done intentionally. Thus pretend play encompass emotion, cognition,

language, and sensori-motor actions (Gmitrova, Podhajecka, & Gmitrov, 2009), which will

be addressed further later on.

Much literature has explored the various types of pretend play children engage in,

though each operationalizing these types differently. First, researchers make the important

distinction between solitary pretend play and social pretend play (Li, Hestenes, & Wang

2014). Simply put, in solitary play children engage in make-believe on their own, whether it

be through creating dialogues in their head or speaking out loud to concrete or imaginary

characters (i.e. toys, dolls, imaginary friends). Social pretend play, on the other hand,

involves children engaging in play with an adult or with other peers, working together to

create and act out imaginary situations or stories. While research has not explicitly stated

an effect of one type of play over the other in terms of social cognition it can still be

inferred that as the act of pretending occurs in both situations, solitary or social, ToM and

empathy is equally enhanced.

Next, there are the distinctions between symbolic and conventional imaginative play

(Lewis et al 1992; Stagnitti & Unsworth 2003) and concrete and abstract pretend play ((Li,

Hestenes, & Wang 2014; Mathews 1997). Lewis et al's (1992) symbolic play versus

conventional imaginative play strives to distinguish between symbolic substitutions and

representations versus merely animating conventional (and tangible) toys (i.e. dolls, cars).

Defined, symbolic pretend play involves (a) the substitution of one object to represent

another (i.e. using a pillow as a baby), (b) the use of a symbolic action to refer to an absent

one (i.e. jumping over an imagined river), and (c) the substitution of a symbolic action to

refer to an absent one. Conversely, conventional imaginative play refers to the actions of

children using conventional toys to pretend and create alternative worlds (using dolls to

create a family and acting through the dolls). Slightly similar, Li, Hestenes, & Wang (2014)

explore Mathews' (1997) distinctions between concrete pretend play and abstract pretend

play, focusing more on the different ways a child might transform objects or ideas in their

play. With concrete play, the transformation of materials or physical objects is observed,

the child using a concrete object to represent something entirely different. Again, an

example of this would be a child using a pillow or sac of flour as a baby. Abstract play then,

is the transformation of ideas or images within a child's mind, children using abstract

representations to symbolize said ideas or images. The example of pretending to jump over

hot lava could again be used here. Li, Hestenes, & Wang (2014), express that because

children use symbolic thinking skills, which is seen as more cognitively advanced, abstract

pretend play is recognized as having cognitive advantages over concrete pretend play. As it

may be gathered, both concrete and abstract play fall into Lewis et al's (1992) category of

symbolic play. For the purpose of this study, these categories will be combined too look at

three types of pretend play: (1) conventional imaginative play (where no transformation is

occurring), (2) concrete pretend play, and (3) abstract pretend play.

It has been identified that play occurs primarily in Piaget's "symbolic stage" between

the ages of two and six, though oftentimes continuing on into later childhood. As children

age, their play progresses from a simple substitution (i.e. concrete pretend play) to a more

complex social system of group imaginative play (i.e. more abstract pretend play) (Curran,

1999). Through a great deal of observational and experimental research, researchers have

also been able to recognize gender differences in the pretend play behaviors of preschool

children. In the field of child development, it has become widely "known" that young girls

tend to engage in pretend play more than boys (Jones & Glenn, 1991; Gmitrova et al, 2009;

Li, Hestenes, & Wang, 2014). This being said, overall findings are still seemingly disparate

and should be examined further. In their research with preschool aged children (3-5 yros.),

Gmitrova et al (2009) found that while both boys and girls preferred play without pre-

determined rules, girls gravitated toward pretend play while boys favored a more

constructive play, building or creating things without an imaginative narrative. They also

noted that when both are engaging in pretend play, girls are more likely to collaborate with

peers while boys tend to pursue individual interests through their play. In a review of

extensive empirical research in this area, Li, Hestenes, and Wang (2014) report findings of

boys preferring to engage in concrete pretend play (using an object to represent something

entirely different) while girls preferences fell more in line with abstract pretend play (using

intangible representations of something in a child's mind). Despite these reports, Li et al

(2014) were unable to find significant gender differences between engagements in

concrete, abstract, or conventional pretend play.

In another study, Braza et. al (1997) did find significant differences in the play behavior of young boys and girls. As seen in other research, boys were significantly more likely to engage in aggressive and leadership-taking behaviors, showcased through rough-and-tumble play, teasing, fighting, and taking objects from their peers. Boys were also more likely to engage in solitary play, choosing to play on their own instead of within a group. Girls on the other hand, were significantly more likely to engage in games, with or without rules, and role-play (pretend play).

It is important to note that these gendered play preferences are not defining of the individual. Research has shown that sex stereotyping is understood in children as early as age five and thus unisex playgroups are commonly formed from the beginning, whether they are due to gender labels or these pre-conceived sex based styles of play and behavior (Braza et al, 1997). Young children, as well as adults, are also subject to social adaptation and socialization, potentially feeling the pressure (subconsciously or not) to behave in certain ways to match their internalized understandings of gender roles. With the continuation of gender-segregated playgroups, these sexed play behaviors are only encouraged and emphasized further and should taken into account as a potential confounding variable.

Effects of Pretend Play on ToM and Empathy

Research on the many cognitive and social benefits of pretend play has been very consistent, generally providing evidence for the importance of pretense on the developing child. Commonly accepted benefits of pretend play are the formation of conceptual distinctions between object and action and the self and other; understanding of social rules and roles; and skills for peer negotiation and conflict resolution (Doyle & Connolly, 1989;

Rubin & Maino, 1975). In their reviews of research in this area, Lillard et al (2013) identify

pretend play as aiding in many developmental areas, including nonsocial cognitive

aptitudes (creativity, intelligence, problem solving, reasoning, conservation), Theory of

Mind, social skills, emotional regulation, and language development.

The majority of research revolves around the relationship between pretend play

and social competence (the ability to achieve personal goals while maintaining positive

relationships with social partners) (Walker, Irving, & Berthelsen, 2002) and the

development of prosocial versus aggressive behaviors. Offering theories for this

correlation, Lillard et al (2013) describe that alone or with others, children may pretend

(and often do) about emotional or difficult issues and that working through these issues in

pretense will enhance their general social skills, as they are able to explore the facets of

matters in their own way. They report some studies finding positive correlations between

teacher ratings of social skills and the amount of time engaged in pretend play (Connolly &

Doyle, 1984; Rubin and Maioni, 1975) while others did not (Rubin & Daniels-Beirness,

1983; Gayler & Evans, 2001). In their own paper, Gmitrova & Gmitrov (2004) found a

positive correlation between cognitive and affective behavior during pretend play,

providing evidence for play being an important facilitator of "cognitive competence." They

go even further and suggest the cognitive skills gleaned from pretense (pretend play) are in

fact more important for academic preparedness and later success than traditional

academic memorization and other such methods. Research has also found positive

correlations between the partaking in pretend play and teacher ratings of their social

competence, peer popularity, and social role-taking (Doyle & Connolly, 1984).

In regards to social cognition (Theory of Mind and empathy), results are less

consistent, potentially due to the lack of examination in this specific area. Lillard et al

(2013) found inconsistent results in their review of the ToM and social pretense

relationships (no studies of relationship with solitary pretense reviewed was adequate).

With understandings of ToM and pretend play, logically, the two should be well correlated,

generally expected that a high engagement in pretend play should well assist ToM. One

longitudinal study looked at pretend play behaviors at 30 months and then at 40 months

and found the role enactment aspect of pretend play predicted last ToM (Lillard et al, 2013;

Youngblade & Dunn, 1995). Interestingly, one study describes a relationship between the

two constructs with an opposite direction, finding that children with more advanced ToM

skills spent more time engaging in more complex pretend play. Gender, though, was not

explicitly examined in these studies. In her dissertation, McInnis (2014) also reports many

findings of empirical evidence towards the relationship between pretend play and Theory

of Mind understanding and development. For example, in their research with four-year-old

children, Taylor and Carlson (1997) demonstrate the correlation between a child's

engagement in pretend play and their individual Theory of Mind. In their research, they

interviewed 152 three and four-year-old children on their pretend play behaviors before

giving them a number of Theory of Mind tasks (i.e. false belief, appearance-reality).

Children were then categorized based on their level of fantasy: low fantasy or high fantasy.

Ultimately, they found that those in a "high fantasy" group (characterized by the use of an

imaginary friend; impersonating a character) scored highest on Theory of Mind tasks.

It can be assumed that this relationship emerges due to the flexibility of thinking

that occurs during pretend play, as pretend play oriented children may have more practice

taking perspectives (McInnis, 2014). In using their imagination, children unknowingly

practice taking multiple perspectives, switching from character to character and from

fantasy from reality. This fantastical play gives children the opportunity to recognize and

understand people experience different thoughts, feelings, and mental states than their

own.

In regards to empathy, results are also inconclusive as research in this specific area

is yet to be further established. Because empathy and ToM, though separate constructs,

oftentimes get treated as synonyms or aspects of one another, specificities of pretend play

benefits on empathy have not clearly been defined. Hopefully this paper can achieve some

results, as more research in this area is needed. However, it can be assumed that empathy

development will follow similar trends to those of other cognitive developments in relation

to the engagement of pretend play. As described earlier, the components between ToM and

empathy are closely related, with ToM representing the cognitive perspective taking and

empathy the affective perspective taking. As research discussed above has shown a positive

correlation between pretense and cognitive perspective taking (Lillard et al 2013), it can be

estimated that with a continuation of pretense engagement and overall cognitive

development of the child, higher affective perspective taking (empathy) will be seen.

Proposed Study

Through past research, various links have been somewhat established that will be

explored in this proposed study. First, findings show a trend of a female superiority in

social cognition, though, more so in empathy than in Theory of. Secondly, research as

shown a correlation between engaging in pretend play and an enhanced social cognition

(i.e. Taylor & Carlson, 1997). Lastly, a relationship between pretend play and gender has

been noted, such that girls tend to engage in pretend play more than boys. These three

phenomena thus ask the question: are girls more empathetically advanced because of their

early engagements in imaginative play? Can an immersion in pretend play remove the

gender differences of ToM and empathy for young girls and boys?

The purpose of the current study is to explore just this: the effects of pretend play

on the development social cognition (Theory of Mind and empathy) in regards to gender.

How can an engagement in pretend play mediate the gender differences typically seen in

Theory of Mind and empathy behaviors? Using a sample of 150 three-year-old children, in

their first year of preschool, a repeated-measures quasi-experimental method will be

implemented to understand the effects of an intervention of extensive pretend play on

social cognition in these boys and girls. This study will be will extend over one year, with

the first semester of preschool dedicated to getting to know the children and collecting

baseline measures of their Theory of Mind understanding and empathy and the second

semester being the play intervention itself. Scores of ToM and empathy will be collected at

the end of the semester long manipulation and then again at the end of their preschool

experience, most likely at age five. Manipulations will occur in that one classroom will

receive extra pretend play forces, whether they be through instructions by teachers, more

costumes and fantasy toys in the space, or less time spent on traditional learning while the

other class proceeds as usual (children allowed to pretend or not pretend as much as they

typically desire). Teachers will work with researchers prior to the start of the study to

decide how best to implement this play intervention and to avoid the confounding variable

of teacher effects (differences in individual teachers' behaviors that might influence the

outcomes of the study).

It is thus hypothesized that there will be an interaction between intervention, time

of assessment, and gender, such that in the non-intervention group (control) girls will

score higher in ToM and empathy at time 1 (pre-intervention), time 2 (post-intervention),

and time 3 (at age 5) but that in the intervention group, girls will score higher than boys

only at time 1, scores evening out at time 2 and 3. A simple effect of intervention is

hypothesized, such that those in the intervention group will have higher scores of ToM and

empathy than boys. A simple effect of time assessment is also hypothesized, such that

scores will be higher at time 2 and 3 than time 1. Lastly, a simple effect of gender is

hypothesized such that girls will score higher on measures of ToM and empathy than boys.

Generally, higher scores of ToM and empathy are expected at time 2 and 3 despite gender

and intervention as children's development of these capabilities is already occurring during

this time. The difference for the intervention group, though, is a hypothesized even

distribution scores for girls and boys, compared to the control.

PROPOSED METHOD

Participants

A power analysis suggests that participants for this study will be 150 three-year-old

children (N=150; estimated 75 girls and 75 boys of a somewhat diverse background of

race, ethnicity, and socioeconomic status; most likely will be majority white) drawn from

five different schools in the Los Angeles area in their first year of preschool. Schools will be

recruited directly by research assistants, visiting schools to explain the study and request

their participation. Children will be naturally divided based on their classroom

assignments before entering their school, with an estimated 15 students per class. For each

school these classes will undergo the manipulation, one class assigned to the intervention

and one to the control. Consent will be obtained from each school director before entering

the school, and then from all parents and teachers prior to the beginning of the study.

Assent from each child will also be collected.

Measures

Theory of Mind. Curated by Wellman and Liu (2004), the seven items Theory of

Mind Scale was designed to measure children's ToM capabilities, their ability to recognize

various mental states of others, at different times during their development, the seven tests

included vary in their level of difficulty. Each task should take about 20 minutes to

complete and uses a similar style of pictures, stories, and toys. Responses to each task will

be scored as either "correct" (child receiving 1 point) or "incorrect" (child receiving 0

points) and summed to get a composite score of ToM for each child. The highest possible

score is a 7 and the lowest a 0. For the purpose of the present study, these scores will not

indicate a cutoff for having or not having Theory of Mind, as the change in ToM overtime is

the main focus. Past research has shown that typically as children age they pass more tasks.

The following descriptions are of the seven tasks that will be combined into the final score.

Diverse Desires. In this task, children are tested on their understanding that two

people (the child vs. someone else) might have different desires about the same object. For

example, the child is presented with a toy figure of a child and a piece of paper with two

drawings on it, a cookie and an apple. The child is told the name of the character (i.e. Jane)

and that Jane will be having a snack. The child is then asked to select his or her own

preferred snack (the cookie or the apple); this is the "own-desire" question. If the child

selects the apple they will be told that Jane prefers the cookie. Then, the child will be asked

the "target" question: "it is now snack time, which snack will Jane choose?" In order to be

scored as correct (passing the task), the child must answer the "target" question opposite

to his or her answer to the "own-desire" question.

　　　　Diverse Beliefs. In this task, children are tested on their understanding that two

people (the child vs. someone else) can have different beliefs about the same object, even

then the child does not know which belief is true or false. For example, the child is

presented with a toy figure of a child and a piece of paper with a laundry basket and a

cabinet on it. The child is told that the figure, "Linda," is looking for her cat and that she will

look in the basket and the cabinet. The child is then asked the "own-belief" question:

"where do you think the cat is hiding?" The child is then told that despite it being a good

answer, Linda thinks it will be in the other option. At this point, the child will be asked the

target question: "where will Linda look for her cat?" In order to be scored as correct

(passing the test), the child must again answer the target question opposite to his or her

answer to the own-belief question.

　　　　Knowledge Access. In this task the child must judge the knowledge of another

person. For example, the child will be presented with a plastic box containing a small toy

inside of it. The child will be asked what he or thinks will be inside of it (any answer here is

acceptable) and is then shown that there is a toy inside. The box is closed and the child is

asked again what is inside. Next, a toy figure of a child (i.e. "Tommy") is presented and the

child is told that Tommy has never seen inside the box. The child is then asked if Tommy

knows what is inside the box (the target question) and if Tommy saw inside the box (the

memory question). To be scored as correct, the child must answer both the target question

and the memory question "no."

Contents False Belief. In this task children judge another person's false belief about

what is in a distinctive container when the child themselves knows what is in the container.

For example, the child sees a cereal box with a toy dog inside the closed box. "Here's a

cereal box, what do you think is inside of it?" The box is then opened and the child becomes

aware of its contents (the toy dog). The box is then closed: "okay, what is in the cereal box?"

Next, a toy figure of a child is presented (i.e. Jane) and told Jane has never seen inside the

cereal box. The child is asked what they think Jane will think is inside the box: cereal or a

toy dog? This is the target question. The child is also asked whether or not Jane saw inside

the box (the memory question). To be scored as correct, the child must answer the target

question "cereal" and the memory question "no."

Explicit False Belief. (Sometimes used as the "Sally and Ann Test"). In this task, the

child judges how someone will look for something, given that person's false belief. For

example, the child sees a toy figure of a child and a piece of paper with a backpack and a

closet drawn on it. The child is told: "here's Billy, Billy wants to find his hat. His hat might

be in the closet or it might be in his backpack. *Really,* Billy's hat is in his backpack BUT Billy

thinks his hat is in the closet. Where will Billy look?" (the target question). "Where is his hat

really?" (the reality question). To be scored as correct, the child must answer the target

question "closet" and the reality question "backpack."

Belief Emotion. In this task, the child judges how a person will feel, given a mistaken

false belief. For example, a child is shown a figure of a child Teddy) and a clearly

identifiable Cheerios box with rocks inside the closed box. The child is told it is a Cheerios

box and asked what is inside. The child should say Cheerios. Next, Teddy is introduced and

tells the child Cheerios are his favorite snack. Next, the child is shown the contents of the

box: just rocks! The child is then what Teddy's favorite snack is; child should say Cheerios.

Next, Teddy returns and the child is told that Teddy has never seen inside the box, and that

the box will be given to Teddy. The child is asked how Teddy feels about getting the box of

Cheerios, happy or sad (this is the target questions)? Finally, Teddy looks inside the box

and the child is asked how Teddy feels after looking inside the box, happy or sad (this is the

emotion-control question)? To answer correctly, the child must answer the target question

"happy" and the emotion-control question "sad."

Real-Apparent Emotion. The most difficult in this set, this task requires a child to

judge that a person can feel one thing but display a different emotion. To begin, a child is

shown a piece of paper with three faces on it: a happy face, a sad face, and a neutral face.

This is mainly to get a baseline of the child's understanding of how these emotional states

look. The task really begins with the child being shown a cardboard cutout of a boy drawn

from the back, so as not to see his facial expressions. Next, the researcher should tell the

child: "This is a story about a boy. I am going to ask you about how the boy really feels

inside and how he looks on his face. He might really feel one way inside but look a different

way on his face. Or, he might really feel the same way inside as he looks on his face. I want

you to tell me how he really feels inside and how he looks on his face." The child is given a

moment to understand, then: "This story is about Mark. Mark's friends were playing

together and telling jokes. One of the older children, Katie, told a mean joke about Mark and

everyone laughed. Everyone thought it was very funny, but *not* Mark. But, Mark didn't want

the other children to see how he felt about the joke, because they would call him a baby. So,

Mark tried to *hide how he felt*." Now, the child will be given two memory checks: "What did

the other children do when Katie told a mean joke about Mark?" (Answer should be along

the lines of "laughed or thought it was funny"). "In the story, what would the other children

do if they knew how Mark felt?" (Answer should be along the lines of "call Mark a baby or

tease him"). Next the researcher will point at the three emotion pictures and ask how Mark

really felt when everyone laughed: happy, sad or okay (this is the target-feel question).

Then the child is asked how Mark tried to look on his face when everyone was laughing at

him: happy, sad, or okay (this is the target-look question). To be correct in this task, the

child's answer to the target-feel question must be more negative than the answer to the

target-look question.

     Empathy. To measure each child's current empathy, their empathetic

understandings, behaviors, and socialization, teacher and parent evaluations will be

collected along with a direct assessment of participants.

     Empathetic Responsiveness Scale (Belacchi & Farina, 2012). This scale will be

completed by both parents and teachers prior to the intervention. Parents can complete

this scale at any point during the fall semester. Teachers should complete this scale halfway

through the fall semester once they have become more familiar with their students. This

scale is a modified version of the Interpersonal Reactivity index (IRI; Davis, 1980) for

preschool teachers and includes two subscales from the IRI: Perspective Taking and

Empathetic Concern. The Perspective Taking subscale measures the child's cognitive ability

to take others' points of view (measures cognitive empathy) while the Empathetic Concern

subscale measures affective reactions to others' distress (measures affective empathy).

Parents and teachers will be asked to rate each of the eight items (four per subscale) using

a 5-point Likert scale (i.e. 1=never; 5=always). Items 2, 5, and 6 will be reverse coded.

Responses from each item will be totaled for a composite score of empathy for each child.

According to Cronbach's alpha (.78-.85) this scale has good reliability. Both subscales also

have reasonable reliability: Perspective Taking= .64-.74; Empathetic Concern= .65-.78.

While other reports of validity were not stated, this scale has high face validity, in other

words, it accurately measures the correct construct of empathy for this study. A final score

of empathy for each child will be averaged from responses of both parents and teachers. As

the ERS is designed for adults, posing more difficult language that requires an advanced

cognitive understanding, the children participating will not directly complete this

questionnaire. Teachers and parents will complete it with their perceptions of each child's

empathetic tendencies and behaviors.

     Empathy Measure for Preschoolers (Sezov, 2002). Specifically designed to measure

the empathy of preschool-aged children, the EMP is a storybook measure of empathy. It

contains eight three-part vignettes designed to evoke happiness, sadness, anger, and fear.

Four vignettes have a child as the protagonist and four have a dog as the protagonist. Each

vignette measures children's cognitive empathy by asking "How does the dog/child feel

about this?" and their affective empathy by asking, "How do you feel after hearing this?"

Responses to these questions are scored on a scare of 0-4, a 4 given to responses that

exactly matched the portrayed emotion of the vignette. A 0 then would be given if the child

did not answer, answered inappropriately, or talked about something completely

unrelated. Scores of 1-3 fall between these two extremes. According to Spearman-Brown's

coefficient, this measure has a very high reliability (0.976). This measure was taken from

McInnis's 2014 dissertation as their research measured the same constructs as the present

study.

     Pretend Play. Before beginning the study, parents will receive a questionnaire

regarding their child's play behavior at home. Not a pre-existing measure, this

questionnaire will be designed and developed for the present research and will ask

questions such as: How many hours a day does your child spend playing? What does this

play look like? Does your child engage in imaginary play? Does your child have an

imaginary friend? Does your child prefer solo play or games with other people? The

questionnaire will contain definitions of the constructs being measured and any relevant

information parents and teachers might need to understand and answer the posed

questions. Children will be given a similar questionnaire with language more appropriate

for their cognitive understandings, most likely done verbally in person with each child. This

questionnaire will be an important baseline measure of children's current play

engagements before the intervention. Responses from parents, teachers, and children

themselves will be coded and averaged.

     Intervention. The intervention itself will be an extensive integration of pretend play

into the classroom for a period of six months (one preschool semester). Before designing

the intervention for each school, as researchers must work with classroom teachers to

design an intervention that goes above and beyond the norm for pretend play

opportunities and behaviors, the teachers themselves will be assessed and trained. Before

the start of the fall semester, individual teaching styles and methods will be assessed so as

to make known any possible teacher effects, in other words, the variability in teaching style

or traits that might influence the behaviors of children and thus alter results. From this

data, researchers will then develop a training program for all participating staff and

teachers so as to enhance uniform behaviors towards the participating children. This

training will occur during the first week of the fall semester. Once completed, researchers

will work directly with preschool teachers to develop an extensive pretend play

intervention. Upon outlining the specifics of the intervention, instructions will be

distributed to all schools involved, ensuring all classrooms receive an identical

intervention. It is presumed that most likely the intervention classroom will have more

opportunities for pretend play and imagination through "set-ups" or play stations around

the room with different scenarios of which the children can engage freely. Teachers will

also be trained to encourage more imaginative play or plan make-believe type group

games. Extra costumes and toys will also be provided. To avoid gender biases in the types

of play, set-ups will be gender neutral, with options to play house, doctor, and pilot (for

example). Once the intervention is decided upon, the intervention can be implemented

during the winter break between the fall and spring semesters.

Procedure

The total length of this study will be one year, with all preparatory data collected in

the fall semester and the intervention during the spring semester. To prepare, consent will

be collected from the school directors, teachers, and parents. Assent will be collected from

each participating child. Once consent has been giving, teachers will undergo training and

work with researchers to develop an appropriate intervention of pretend play, as described

previously. The study will begin at the start of preschool, with three-year-old students

entering their first year. For the first month of the semester, students will be getting to

know each other, their teachers, and research assistants who will be coming in once a week

to play and become familiar to the children. This familiarity to the research assistant is

important as they will be conducting the various baseline measures throughout the

semester. Teachers will be closely observing students during this time as well to become

accustomed to the behaviors of each child, especially in regards to empathy. At the end of

this month period, teachers will be given the empathy scales to complete and research

assistants will begin conducting the seven ToM tasks with the children. Parental

evaluations of empathy will be given out at the start of the semester and can be returned to

researchers anytime before the winter break. Once this data has all been collected, the

intervention can begin when children return in the spring.

For each preschool involved, classrooms will be randomly assigned to one of two

groups; group 1 being the intervention group (receiving the extra pretend play) and group

2 being the control (no play intervention; proceeding as normal). Throughout the duration

of the intervention, classrooms will be separated with no class-to-class interactions, so as

not to instill jealousy in the control group regarding the intervention class having

potentially more fun. Children will be observed in both classes throughout this entire

semester. At the end of the spring semester, parents and teachers will submit the empathy

questionnaires again and children will complete all seven ToM tasks again. At this point,

the intervention has ended. At age five (in their last year of preschool; right before entering

kindergarten), children will be tested again and parent and teacher measures will be

collected so as to see if the intervention effects held up over time. To ensure student

comfort with these later tests, research assistants will continue to visit classrooms at

various points over the two-year period between assessments.

ETHICS

Because of the nature of this investigation attempting to understand pretend play's effect on ToM and empathy development, the proposed study involves a protected population: children. As this use of children is unavoidable, measures will be taken to ensure the protection of study participants. This will occur through obtaining consent from the school in question and the parents or legal guardians *and* receiving verbal assent from the children themselves. Before the start of the study, children will also become familiarized with researchers who might be observing them or administering any possible tests and tasks so that they feel comfortable and understand the role of the researcher. It will also be made especially clear that participation in the study will be entirely voluntary. Participants and their parents or legal guardians made aware they can discontinue their involvement at any time without penalty.

All this being said, the level of risk to participants in this proposed study is minimal, with potentially no risk at all. As children are, for the majority of the study, being merely observed, their day-to-day experiences will not be significantly altered. With regards to the various tasks they will be required to perform (the various scales and tests explained earlier), no sensitive topics will be covered, requiring no sensitive information to be shared or recorded. Although no sensitive information will be collected, general standards of collection will be followed and, for the protection of participants, all data will remain confidential. The study will also not require the use of any deception, and thus, no discomfort should be caused for participants at any point during the study. Clearly, as risk for participants is very low, the benefits, described below, of the study should thoroughly outweigh any potential risks.

The possible outcomes of this study may benefit knowledge in the field, society at large, and the participants themselves. In gaining results regarding the potential positive effect of pretend play on ToM and empathy development, the call for more day to day play interventions in the classroom is amplified, providing evidence for the importance of free play time in addition to, or in some cases as a substitution for, mainstream education methods. More so, this study calls attention to the potential ability to intervene at a young age and mediate gender differences in these typical developments. For the participants themselves, they will experience an interactive play facilitation that could directly improve their own developments, as well the satisfaction of potentially aiding in important scientific and societal knowledge. As this study adds important information and possible findings to a growing field while having very minimal risks to the participants, it should be entirely ethical.

<div align="center">EXPECTED RESULTS</div>

It was hypothesized that there will be a main effect of play intervention, such that those in the play intervention group will show significantly higher scores of empathy and ToM at the end of the intervention. Confirming this hypothesis, a mixed model ANOVA is expected to show that the intervention classroom will have significantly higher mean scores of empathy and ToM than the control classroom. It was also hypothesized that there will be a main effect of time, such that mean scores of empathy and ToM will be higher at time 2 (post intervention) and at time 3 (at age 5) than time 1 (pre-intervention). Confirming this hypothesis, a mixed model ANOVA is expected to show that scores at time 2 will be significantly higher than time 1, and that time 3 scores will be significantly higher than time 1 and 2. It was also hypothesized that there will be a main effect of gender such

that girls will have higher scores of ToM and empathy than boys. Again, a mixed model

ANOVA should show significant results confirming this hypothesis. Finally, an interaction

between intervention, time, and gender is hypothesized, such that in the control group,

scores of ToM and empathy will be higher for girls than boys at time 1, 2, and 3, but that in

the intervention group scores of ToM and empathy will be higher for girls at time 1, but

then even out at time 2 and 3. A mixed model ANOVA should again confirm this hypothesis.

such that at time 1, girls will show higher scores than boys, at time 2, mean scores

should be higher and roughly equal for girls and boys, and at time 3, mean scores should be

slightly higher and still roughly equal for boys and girls. All participants in group 1

(intervention) should have higher mean scores of empathy and ToM at time 2 and 3

regardless of gender.

<div align="center">DISCUSSION</div>

As stated previously, the results of this study should suggest an importance for the

integration of play (especially pretend play) into the classrooms of young children. Theory

and Mind and empathy are incredible and necessary capacities of the human mind, and can

only benefit from early guidance. Research has noted many links between the engagements

in pretend play and general cognitive abilities, and thus more attention given to creativity

and play is highly encouraged. Research has also noted a trend of females scoring higher

than males on measures of ToM and empathy in specific. The purpose of the presently

proposed study is to explore the relationship between play, social cognition, and gender,

striving to find a mediator for the disparity between male and female Theory of Mind and

empathy tendencies.

If results follow expectations, it will be found that children engaging in extensive pretend play will show a more developed social cognition, that they will be more adept in empathy and Theory of Mind capabilities (i.e. recognizing mental states of others). It should also be found that the gender differences in empathy and ToM seen in three year olds in their first year of preschool will be mediated, that for those children engaging in the pretend play intervention, they will show no gender differences between scores of empathy and ToM. Clearly, these expected results exhibit the potential of enhancing social cognitive skills at a young age and should not be disregarded.

Research in this area is very important as a seemingly normal facet of childhood (play and imagination) tend to be overlooked as unimportant and unrelated to the mental development of the child. As the research in this paper has demonstrated, pretend play is a crucial aspect of a child's development especially in areas of social cognition as it unknowingly forces children into thinking creatively through the character of another. The potential findings of this study in particular make the point for a higher integration of play into everyday academic settings. As schools become more focused on the academic performances rather than the well-being and social adeptness of their student body, children lack the opportunities to explore within their own mind and make sense of the worlds around them, let alone become more well adjusted and socially competent. Of course, there will continue to be pushback from administrations putting more money and resources into the strict traditional academics due to societal standards of intelligence necessary for success, but hopefully this paper can become part of a greater breadth of research suggesting paying more attention to alternative education methods.

While this study has not been currently run, there are some perceived limitations. When working with children, researchers always come across particular difficulties they might not find when working with more cognitively developed adults or adolescents. In working with with three year olds in their own classroom, as proposed for the present study, it is expected that attention and cooperation could be a limitation. As children are being plucked away during the first semester of preschool to complete the seven ToM tasks, it is imagined that other children will be curious of their disappearances. It can also be imagined that children might talk to one another about the tests, not that this would necessarily influence a participants responses, and become familiar with the material before completing the task themselves. A more significant limitation will be finding enough preschools to participate in this somewhat invasive study. Extensive recruitment will have to take place and getting consent from the necessary school districts or principles can be a very bureaucratic and time consuming process. Teacher effects are also of some concern but hopefully should be generally cleared during the training period. Researchers in the classroom can also observe the teachers and let them know if their behaviors are in anyway confounding to the study. Lastly, there is a limitation regarding the grouping of children. That because classes will be receiving the manipulation (intervention vs. control) versus the individual child grouping effects can be expected, children behaving similarly to those in their classroom over time. Despite these limitations much of the literature reviewed in this paper have attempted studies with similar methods and have been able to maneuver these described barriers.

Despite the wide breadth of literature and research in this area of pretend play's power over the social cognitive development of the child, the field still lacks in conclusive

knowledge. In particular, there is an insufficient conclusion regarding pretend play's

influence on Theory of Mind and empathy. Future directions of this research should thus

attempt to tackle all gaps in the literature. To begin, this study could be conducted

identically while measuring different dependent variables, different social cognitive

abilities. For example, perspective-taking. Perspective-taking is a very interesting measure

and has been used as a dependent variable for some research around play. As children are

constantly putting themselves into the shoes, physically or mentally, of their peers or of

make-believe characters they are constantly taking the perspectives of others. It would be

interesting to look at then the relationship between perspective-taking and Theory of Mind

or empathy.

Another direction could surround the notion of pretend play being an important

form of self-expression and self-understanding, that through imaginative play children are

able to look at their own life and experiences through an outside lens and thus might be

able to cope or comprehend better. Research should look into this and design studies to

assess the effect of pretend play on children's own personal challenges. Does engaging in

play and talking through worries or fears through another character help children

internalize and then address them?

Clearly, research around pretend play and its positive effect on young children is

very important. As play, pretend or other forms, is used in innumerable ways whether it be

in the classroom, in therapy, or even as a means to meet new people, it must be studied

more. Play behaviors come in a vast variety and offer different importance to each child

and, as it is something generally all children can relate to, it cannot be disregarded.

Regardless of play itself, empathy and Theory of Mind are two extremely important facets

of the human mind. Crucial for social understanding, respect, and kindness, both empathy

and Theory of Mind are necessary for the integration into the world. Of course, though,

these two social cognitive abilities are also oftentimes ignored, with traits like academic

"smartness," mathematic skills, and other such concrete abilities taking precedence. While

these abilities are also necessary, a society of empathetic people who are able to see things

from other perspectives and recognize that everyone thinks about things differently can

only help. This study commends both readers and researchers to continue exploring in this

area, as if there is a way to enhance someone's Theory of Mind, and more importantly

empathy, it must be acted upon.

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