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Although toy-mediated play has been the focus of much research over several decades, most work has focused on how parents are engaging with their children while playing with toys. However, teachers at childcare centers are interacting with children and toys or materials on a daily basis. Guided by the theory of affordance and sociocultural theory, the current study sought to explore the perspectives of teachers who engage with young children in object-mediated play and what they believe gives certain toys value. Semi-structured qualitative interviews were conducted with ten teachers currently teaching 2- and 3-year-old children at highly rated childcare centers in North Carolina with the aim of understanding how they define a toy in relation to other learning materials, and what makes a toy likely to afford an interaction or likely to promote a child's development and learning. After inductive and deductive thematic analysis, three main themes emerged: the impact of the toy on children, the teacher's use of a toy in the classroom, and the design aspects of certain toys. Overall, teachers tended to value toys that can be used in a number of different ways and toys that can capture and hold the attention of children in their classroom. Results are discussed in relation to theory as well as implications for toy design and classroom organization.

TEACHERS' PERSPECTIVES ON TOY VALUE, POTENTIAL, AND UTILIZATION IN CLASSROOMS OF TWO-TO-THREE-YEAR-OLDS

by

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CHAPTER I: INTRODUCTION

In the earliest years of life, children usually learn about the world around them through interactions and play. Play can be seen as an essential part of childhood that promotes children's development and helps them explore and experiment with concepts they might not completely understand yet (Hakkarainen & Bredikyte, 2008). Research on play has long been the subject of many endeavors by developmentalists and often includes children's interactions with parents and caregivers. It has been found that adults or peers in a play interaction have the potential to enhance the experience and teach the children new information and skills via modeling and other forms of support known as scaffolding (Hakkarainen & Bredikyte, 2008). These play interactions can also frequently include toys, but far less work has been dedicated to exploring this dynamic. A concept commonly applied to several objects, including toys, is what behaviors they might *afford* as described by the Theory of Affordance, originally proposed by Gibson (1977). The affordance of any element of an environment is defined as what someone might see as a potential behavior or use for the object or feature in question. For example, the affordance of a chair is most often to sit, but it also can afford multiple other behaviors such as standing on, balancing on, and carrying (Gibson, 1977). When applied to toys, the initially perceived affordance is likely to be the intended play behavior associated with the toy, such as a top affording spinning. However, there is a limited existing body of research that has examined how certain toys might promote, or afford, different types of behaviors that might not be so obvious, such as interactions. For example, one study looking to differentiate the type of talk afforded by toys and play activities found that some toys that afford certain activities, such as dramatic play, offered opportunities for cooperative talk, while others afforded more problem-solving communication (Leaper & Gleason, 1996). On the other hand, some researchers have been interested in certain

toys changing the frequency of words said as a function of increasing children's vocabulary (Verdine et al., 2019). The perceived affordances of a toy can contribute to how appealing or valuable it is to a child, or even to a parent, during the selection process (Balzan et al., 2018). Although these bodies of literature can provide evidence that toys afford specific kinds of talk or interactions with adults, the studies have been conducted almost entirely with parents, even though children play with other adults, such as teachers, regularly in school or in child care settings.

It is known and recognized by teachers and researchers alike that the preschool years have become increasingly structured over the last few decades, with more emphasis being placed on pre-academic skills rather than on the play skills that enhance elements such as social and emotional development (Lillard, 2015). As a result, or perhaps in tandem, categories of toys now include a dedicated place for materials that are meant to afford academic play (Richards et al., 2020b). However, the line between what is an educational or academic toy and what is not can become very blurry depending on who is asked. A toy can be seen as anything that promotes or affords a play activity (Kudrowitz & Wallace, 2010). However, this particular definition of a toy can be applied to any material, so Kudrowitz and Wallace (2010) have distinguished what many think of as toys, as being "tangible items that are designed to function primarily for play with the intention of being manufactured" (p. 3), yet this definition even leaves room for differing interpretations.

Furthermore, the way in which toys are categorized across designers, manufacturers, marketers, and early childhood education standards, can be based upon expected play activity or developmental domain. The classification of a single toy is likely to evolve from conception to consumption, meaning that there exists the potential for a toy to lose its intended classification or

use by the time it is used by a consumer. However, as long as toys remain in the classroom for children, early childhood teachers will continue to play an important role in mediating this relationship and influencing the end result of how a child uses a toy.

The aim of the current study was to explore these concepts of perceived affordances and distinctions between types of toys through interviews with teachers of young children ages 2 and 3 who are not yet in the more structured, pre-academic world of preschool. Rooted in the aforementioned Theory of Affordance, in combination with Vygotsky's sociocultural theory, the research questions investigated were: 1) How do teachers of 2-3-year-olds conceptualize the difference between what they see as learning materials and what they see as toys?; 2) How do specific design characteristics of toys relate to teachers' perceived potential play interactions with young children?; and 3) How do specific design characteristics of toys relate to how teachers perceive the potential of the toy to aid in development and learning? The purpose of this study is of an exploratory nature, as there is a dearth of literature on the intersection of child-teacher play interactions with toys, and teachers' perspectives about them. The aim is to lay the groundwork for future research exploring these phenomena.

The following sections provide both a theoretical and empirical basis for the current study. First, an overview is provided of the two predominant theories that have informed the work, as well as how they intersect to complement each other in regard to the presented research questions. After the theoretical framework, a review of relevant literature is presented, along with identified gaps that this study was designed to address. After the background information is presented, the methods section explains the process by which data were collected and analyzed. At the end of the methods section is a positionality statement for the researcher and reliability coder. The last two sections are the results of the data analysis and a discussion of those findings.

CHAPTER II: THEORETICAL FRAMEWORK

One common approach to explaining the relationship between adults and children and how they might promote learning is through Vygotsky's sociocultural approach. This section will first explain how the concepts in sociocultural theory are typically viewed in regard to interactions in the classroom and present the framework for how teacher-child interactions can be seen to enhance learning and development. The current study aims to intersect the interactions in the classroom with the physical objects present during those interactions, so the second section will introduce a lesser-known theory associated with these objects and their potential. The Theory of Affordance (Gibson, 1977) will be used here to fill in gaps that are not explicitly addressed by Vygotsky's theory, that pertain to how an object might be utilized in these learning interactions.

Sociocultural Theory

Vygotsky's sociocultural theory is grounded in the belief that children develop as a result of their social interactions, which are impacted heavily by the culture in which they are embedded (Miller, 2016). It is through interactions that children are taught what is valued and accepted in their culture, and therefore learn skills to achieve those goals (Miller, 2016). In contrast to some other theories, particularly stage theories, sociocultural theory posits that learning is what is first required in order to ignite the subsequent developmental processes (Scrimsher & Tudge, 2003). In other words, the interaction as an experience embedded in a specific culture and that culture's use of language is a source of learning, and the changes in cognition are a result, rather than a cause of the learning, and that this development would look different across different cultures (Miller, 2016).

The progression of learning is thought to be that a piece of information first occurs outside of the child, externally in some type of social event such as modeling (Wertsch & Tulviste, 1992), and then the information is internalized (Miller, 2016). When a child imitates information that has been received, they are internalizing what they have seen modeled; when the same information or strategy is applied to a new experience and used of their own volition, that information has then been externalized (Scrimsher & Tudge, 2003). The internalization of information is processed via speech or language, which is external in the earliest years, and then eventually becomes inner speech as a child matures. In the transition between external and inner speech, egocentric speech emerges in about the third year of life (Wertsch & Tulviste, 1992). In the earliest years, an infant is reliant upon the lower, or more primal functions of their cognition that are rooted in survival, such as reflexes, which require no internal speech to activate. As a child advances in age and cognitive ability, higher more complex mental functions come to the forefront. These functions, unlike the lower, are specific to the culture in which the child is placed (Bodrova, 1997). Given that learning occurs in an external interaction first, the child is experiencing not only verbal and non-verbal interactions with other individuals, but also with the environment around them, and the context can influence how or if the child engages at all with the setting or situation (Miller, 2016). When a child is working to achieve a goal, such as acquiring a new skill or problem solving a novel challenge, the distance between their current skill level and their 'achievable potential' is referred to as the zone of proximal development (ZPD; Wertsch & Tulviste, 1992).

This hypothetical plane is thought to provide a space that creates a shared mental state between the two interacting parties, where the mental processes are occurring in tandem between them (Bodrova, 1997). Zuckerman (2007) posits that if a child is to achieve a goal based on a

learning interaction, there must be motivation on part of the child in order to learn more about the world and be open to receiving the new information. However, it is also stated that children are naturally curious and believed to have this motivation unless it has been stifled by an outside force, possibly even by a well-intentioned teacher (Zuckerman, 2007). For young children in the first three years of life, though, it is thought by some that the initiation of an activity provided by the adult rather than the child is quite imperative, but in older children, the child initiation is present and the adult role is more of one of support (Litowitz, 1996; Hakkarainen & Bredikyte, 2008). When children start to transition to systematic learning in formal schooling it becomes difficult to maintain their natural curiosities in all areas, so teachers can unknowingly promote certain initiations over others based on the practiced pedagogy (Zuckerman, 2007).

Using the imagery of how tall buildings are able to be constructed from a lower level by supporting the workers, the support from a helpful peer or adult within the ZPD can take many forms but is often called scaffolding (Miller, 2016). Many strategies that fall under this umbrella might be familiar to most, including prompts, clues, modeling, explaining, encouraging, directing attention, and asking thoughtful questions, all of which promote a child's independence in accomplishing a task (Miller, 2016). Though the term is seemingly formal, the practice is common and familiar to families across different cultures. It was found in one study comparing Iranian immigrant mothers and Anglo-American mothers, that both groups adjusted their scaffolding strategies with their children when involved in joint play activities: the more open-ended a task, the less direction the mothers typically provided (Kermani & Brenner, 2000).

Although the common interpretation of scaffolding within the ZPD is somewhat unidirectional, there has been discussion as to how accurate this understanding may be. The term *obuchenie* has been translated in Vygotsky's work from Russian as both 'learner' and as

'teacher', depending on the context of the passage (Scrimsher & Tudge, 2003). However, an argument has been made that these translations are both simultaneously correct and incorrect in that the original intention made by Vygotsky was for the word to mean both (Scrimsher & Tudge, 2003). Using this definition of the word might alter how these interactions are viewed, and particularly how teachers might see their own role in engaging with children within their culture. Taken this way, a teacher is meant to be open to learning from a child equally as much as they expect a child to learn from them (Scrimsher & Tudge, 2003). Sociocultural theory, then, offers the view of a collaborative partnership between a child and teacher, rather than one being a dominant figure and one trapped in a position defined by ignorance. An element not addressed by this theory, though, is what role objects, in particular toys, might play in these interactions between adults and children and how they might be utilized as modes of enhancement and new opportunities for scaffolding.

Theory of Affordance

The Theory of Affordance is rooted in the field of Perception Psychology, which studies how visual input is perceived and interpreted by animals, including humans. In its most basic form, the theory proposes that a physical environment and the elements within it have certain use potentials, or affordances, in reference to a particular animal or person perceiving them (Gibson, 1977). The physical properties of something are not affordances on their own, but only if they are useful to a user and might alter a corresponding behavior (Gibson, 1977; Maier & Fadel, 2009). Similarly, the affordance itself is also not a behavior, but the affordance must first exist in the setting before any behavior has the potential to be altered or acted (Marier & Fadel, 2009). The perceived affordances of a setting or situation are relative to the individuals involved, are thought to be neither subjective nor objective (Gibson, 1977), and must first match the

characteristics and needs of the person in order to be recognized (Kytta, 2004). Once an affordance is perceived, there must be enough of a need from the user to provide an element of motivation in order to initiate a behavior (Withagen et al., 2011), known as *actualizing the affordance* (Kytta, 2004).

A popular example given in the original publication of this theory by Gibson states that if there exists a rigid surface, which is nearly horizontal and flat, spanning a wide enough space then the surface then affords standing (Gibson, 1977). As stated above, the physical characteristics of the surface are themselves unimportant on their own, but when intersected with each other they provide the potential for a behavior. However, the surface provides standing to a person or animal with legs but would afford slithering to a snake, who cannot stand, and would only be useful if the space provided is a proper size for the potential activity. The associated affordance would only be perceived if it is a behavior that could possibly be executed by the user (Gibson, 1977). For example, the top of a soda bottle might afford walking for an insect of some kind but would afford some other behavior entirely for a human, namely, twisting and opening, so a human would likely not perceive the bottlecap as affording walking.

Affordances can be present in observed events (Gibson, 2000), or when planning outdoor environments for children (Kytta, 2004), or in a strategic design of an object (Maier & Fadel, 2009). Affordances can be present in detached objects as well, and typically will be more abundant the smaller and more portable an item is in relation to the user (Gibson, 1977). Similar to the example of the surface for standing, an affordance with an object is unique to that specific combination of object and user (Maier & Fadel, 2009). An object, which is often referred to as an artifact in this field, can also afford a certain behavior more clearly or better than another behavior (Maier & Fadel, 2009). An example given by Maier and Fadel (2009) is that technically

a briefcase might afford sitting, but better affords carrying. While the first affordance is possible and might be used in some situations, the latter affordance is better suited for the object. The design of an artifact can provide affordances intentionally and these "better affordances" might even be so popular and common that the object not only has the potential for the behavior but invites it to occur (Withagen et al., 2011). One possible affordance of an object or a setting is that of social interactions, meaning that the design involved in creating the artifact or environment can inform the interactions which are to be afforded by the final product (Gaver, 1996). Gibson also stated at the inception of this theory that behavior will afford behavior, meaning that other people can also offer affordances, particularly those of social interaction (Gibson, 1977). Interaction affordances can be incorporated into the design of artifacts, such as toys, in order to promote or even invite the occurrence of an interaction (Xenakis & Arnellos, 2013). If certain artifacts can afford interactions and certain people can afford other behavior, then perhaps there is an intersection between a child and a teacher playing together with an object, offering a unique combination of affordances and potential learning opportunities.

The Intersection of Sociocultural and the Theory of Affordance in Joint Play with Toys

Vygotsky believed that everyday knowledge, what is referred to as non-systematic learning, must occur first before an individual can begin to understand the scientific concepts involved in systematic learning which takes place in formal schooling (Scrimsher & Tudge, 2003). A core tenant of sociocultural theory is that when a child is engaged freely in play, they are able to explore the upper bound of their ZPD without restriction (Bodrova, 1997), meaning that play is an essential activity for children and an important source of development (Hakkarainen & Bredikyte, 2008). Interaction affordances can be incorporated into the design of artifacts, such as toys, in order to promote or even invite the occurrence of an interaction

(Xenakis & Arnellos, 2013). The phenomenon to be investigated is that of the interaction of a teacher's scaffolding in joint play, and the perceived affordances of a toy from the point of view of that teacher.

With the new perspective of the term *obuchenie* and the understanding that behavior affords behavior (Gibson, 1977), this intersection supports the idea that what a teacher affords a child is reciprocal to what a child affords a teacher, as identified by Gibson (1977). As stated above, an artifact can only have an affordance if the user can perceive the potential use, meaning that some affordances might not exist to a user, such as a young child if the behavior associated with the affordance is unknown to the user (Withagen et al., 2011). However, a more knowledgeable adult can scaffold a child in discovering how to actualize an affordance, by offering supports such as pointed and open-ended questions, imitating, assisting, or modeling an affordance (Zukow-Goldring & Arbib, 2007), making it apparent to a child (Gaver, 1996). The type of support offered to the child will dictate how much information the child will discover on their own accidentally, and can have implications for how that child might engage with another toy in the future (Trawick-Smith et al., 2014). For example, if a child is playing with a toy car by pushing it only, but it has a pull-and-go mechanism when the car is retracted, an adult can join the play activity and use the toy car in this way, modeling for the child or verbally prompting them to engage this mechanism. From there, the child can utilize this affordance of the toy on their own. Moreover, the adult is showing the child what is valued by their culture. Maybe it is the initiation of exploration that the adult wants to convey, or the ultimate goal of being able to engage with a toy independently and fully utilize it.

There are few empirical studies exploring the Theory of Affordance, and even fewer in regard to children, so the intersection of these two theories seems to have yet to have been

explicitly explored in any study known to the author. In order to establish a foundation for the current study and what gaps it aims to fill empirically, relevant, multidisciplinary research was reviewed and existing gaps were identified.

CHAPTER III: REVIEW OF THE LITERATURE

Each type of play in which a child engages throughout their first few years brings with it opportunities for a new developmental understanding of the world and the objects and people in it (Casby, 2003). While it is difficult to understand what a child may be thinking while they are playing, especially for those who are nonverbal, their use of objects can inform an adult's interpretation of the play by observing how the object is being used. While almost any object with the potential to be played with can be considered a toy, a more formal definition involves a tangible and manufactured item that is designed specifically for this purpose (Kudrowitz & Wallace, 2010). The stages of play can be seen by onlookers who are not participating in the play by relating the child's play to the object or toy they are using. For example, common stages of play include functional play, where one might see a child is simply acting on an object or exploring it with their senses. As play evolves to become more complex, a child learns constructive play, where a child learns to create things, so where the previous stage included mouthing blocks, this stage includes stacking them. A higher level of dramatic play can be detected where a child uses an object to represent another object, such as a stick representing a spoon in a mud kitchen. The progression of these stages of play follows a hierarchical sequence as the child gains more information and cognitive skill (Takhvar & Smith, 1990). Through this progression, play is the way in which children learn new things about their surroundings and environment and can safely attempt new ideas and explore the upper limits of their Zone of Proximal Development (Bodrova, 1997).

Though children play with toys in a number of settings, the person responsible for providing those toys changes across settings, and so too does the motivation behind this selection. While the toys in the home might be primarily selected and provided by a parent or

caregiver (Boe & Woods, 2018), more work is still needed to understand how teachers, who engage with a diverse group of children of varying developmental levels and backgrounds, might select or engage with toys in the classroom. Before addressing the question of what teachers value in toys as they are being selected, and what function the teachers see toys having in the classroom, it is first important to establish what is seen as a toy by teachers, how they might be distinguished from other materials, and categorized to address different learning goals or skills.

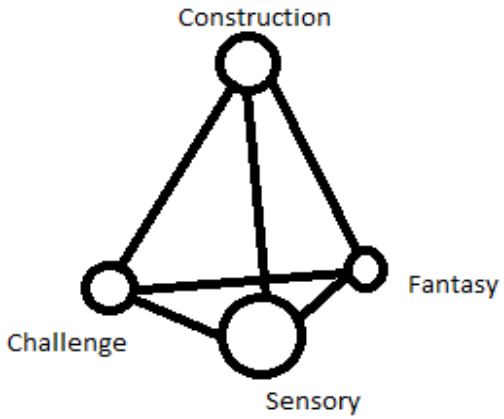
Categorizing Play and Toys

The categorization of play, and therefore of toys, is seemingly dependent upon the reason and function for the categorization. Historically, the categorization of toys has been mostly informed by the existing categories of play. For example, the Consumer Product Safety Commission (CPSC) produces a document called the Age Determination Guidelines which recommends to manufacturers what age might be appropriate for children's products being produced. This document separates toys by how children might interact with them based on the types of play which, in 2002 included basic sensorimotor or practice play, pretend play, construction play, games, or recreational items (Kulak & Stein, 2016). With the growth and adaptation of the toy industry to keep up with advances in technology as well as to accommodate the value placed on learning, the 2020 update to the guidelines document added the domains of media play, academic play, and technology play to the previous categories (Richards et al., 2020b). The age determination guidelines are separate from the safety guidelines which determine if a toy is appropriate for a child under the age of three based on its small parts, and are meant to inform toy designers and companies as to what age children would benefit from their product and utilize it to its full potential (Richards et al., 2020b).

When using toy categorization in a study, however, the criteria are often different from the CPSC guidelines simply due to the research questions or hypotheses the researchers are interested in studying. One study commissioned for the 2020 CPSC report added even more categories to their own procedures, namely including puzzles, instructional toys, small vehicles, arts and crafts, and musical toys (Richards et al., 2020c). While the classifications are still determined by the function of the play associated with the toy, the scope of specificity of these activities varies depending upon the focus and purpose of the classification, which often changes from one discipline to the next.

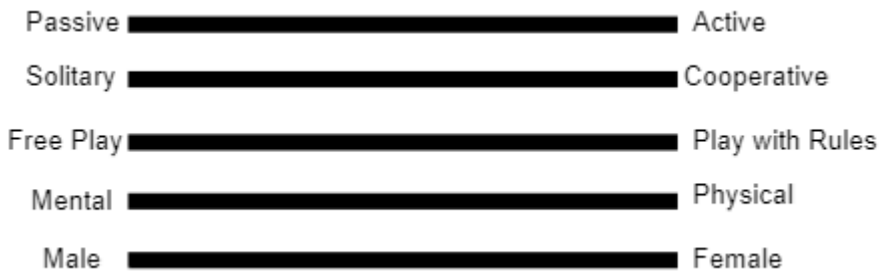
From the standpoint of the designer of the toys, the classification can be conceptualized by intended use but with different criteria. Kudrowitz and Wallace (2010) used a deductive method of evaluating toy products to create a Play Pyramid tool to inform toy designers from a conceptual stage through to actual design and application. The pyramid (Figure 1) is a three-dimensional model and holds at each vertex a type of play activity: sensory play, fantasy play, construction play, and the element of challenge. In between the apexes, there is three-dimensional space within the pyramid to allow for graduate transition from one apex to another.

Figure 1. Play Pyramid (Kudrowitz & Wallace, 2010)



A toy that is thought to have higher levels of challenge and some levels of the other three activities can be plotted in a position within this three-dimensional model more towards the vertex labeled ‘challenge’, but still in the center in the open space of the pyramid. While the toy might have a strong element of challenge, it is not exclusively a challenge toy so its position in the model would not be placed at the apex of the pyramid, but near it. Once a toy has been placed somewhere in the pyramid, there are also proposed sliding *modifier scales for intended use* which include levels of involvement, social involvement, restraint, mental to physical engagement, and gender, all of which can be used to refine how a toy is plotted within the play pyramid (Kudrowitz & Wallace, 2010).

Figure 2. The Modifier Scales (Kudrowitz & Wallace, 2010)



These modifier scales (Figure 2) are intended for designers to use to adjust the intended play without altering the overall classification of a toy. For example, if a toy designer is thinking of a fantasy toy that, in its current conceptualization, affords solitary fantasy play, but the designer realizes they want to encourage more cooperative play, they might duplicate the features, or possibly add in materials that provide the opportunity for two people to participate for the play to be successful. The actual play activity being fantasy would not change but the nature of the play with that toy can change along the sliding bar from solitary to cooperative play. Given the deductive nature of the creation of the play pyramid and its sliding modifier scales, the authors theorize that this function-oriented approach gives designers a more accurate

idea of if and how the toy might be utilized, and propose that if a toy can be plotted on the pyramid, it can afford play. Although play affordances, just like any other affordance, might be specific to the person perceiving the object (Gibson, 1977), this approach to design with specific play activities intended can act to make an affordance stronger or more apparent (Maier & Fadel, 2009). For example, a collection of small blocks can be balanced or placed in a line, but a design change that allows the bottom of one block to interlock with the top of another would make the affordance or stacking more apparent and easier to accomplish.

Kudrowitz and Wallace (2010) laid out explicitly why this proposed classification system is more appropriate for toy designers than other systems previously used by child development professionals. While many of the classification systems mentioned above are helpful in determining what age a child might be able to use a specific toy, these categories are not as helpful in supporting a toy designer to create a toy from its inception. For example, while manipulative play includes fine motor play activities that can be done with a toy, the authors argue that almost any toy can be considered to be in this category, so starting with the concept of manipulation does not inform the conceptual designing of a toy. Additionally, toys very rarely fall into only one category identified by child development professionals, so the sliding modifier scales presented by the authors are a way to capture with greater detail how the toy might be utilized. The purposes of a toy can also be used in reverse to assist in the creation of a toy that is to be plotted in a specific place on the pyramid. Thus, the design of the toy can be informed from the start by the intended play value of the final product, further aligning the potential use and the executed use. While some toys' functions might relate directly to different stages or types of play, there is an assumption that there is a specific age associated with each type of play, even though some toys made for sensory play might be marketed towards and intended for adults

(e.g., a stress ball or a fidget spinner; Casby, 2003; Kudrowitz & Wallace, 2010). There then exists the potential for inconsistencies given that play types in child development are hierarchical by developmental age, but they are not to toy designers. Child development professionals who construct the play type categories for the Age Determination Guidelines are using completely different play categories than the play activities and modifiers that toy designers are using. If these professionals and researchers are not in total agreement with toy designers about the best way to categorize toys, then perhaps there is space to find a common ground between these potential and actualized affordances of toys that might inform both designers and developmentalists. Are all toys made equal, if all have the affordance of play, or are there varying values attached to each?

Toy Design, Affordances, and Play Value

The Play Value of Toys

When a child approaches a toy, there is a process of appraisal before selecting if or how they might play with it and anticipation of how engaging the play may be (Balzan et al., 2018). This concept is considered play value. Children are known to play with toys in unique and sometimes unpredictable ways and this can vary based on their demographics and preexisting knowledge of the toy or its function (Trawick-Smith et al., 2014). When questioned about why they value certain toys, older children in middle childhood identified that functional play value, material value, social value, and personal value were considerations in why they favored one toy over another (Mertala et al., 2016). However, young children cannot express this verbally and likely have very different reasons for the appraisals they give to certain objects, so some research is dedicated to inferring how young children might view toys and what makes some toys better than others. The annual TIMPANI study is one such effort. After reflecting on five years of

recording how children play with popular toys in a preschool classroom, Trawick-Smith et al. (2014) identified that the toys which support a higher quality of play developmentally are those which are simple and open-ended, such as blocks or Lego's, which have few features, but many possible perceived affordances. Despite there being a range in perceived quality of toys, the artifacts can be designed with intentional features that are meant to afford one or more specific play behaviors, such that even one design change can have several play affordances (Balzan et al., 2018).

Toys and Play Affordances

When Gibson's (1977) theory of affordance is applied to the concept of materials, then the way that a person perceives a material will inform what they do with it. The same is true for toys in that the value of each is held in the perception of the user, but the perceived uses can be somewhat manipulated based on the physical characteristics which give the toy perceived action potential (Kudrowitz & Wallace, 2010). A simple example might be a toy monkey whose ears can move when activated. If the activation point is a small, brown button that is the same color as the rest of the toy, it might be difficult to detect this affordance, whereas if the activation point is a bright red lever, it would be more obvious that there is something about the figure that is meant to move. In addition to the classification of play and of toys, some design literature has also sought to classify toy affordances not only on the basis of potential play activities but also in the type of affordance offered. Mertala et al. (2016) identify three affordances for toys which are *attractive affordances* or the features which invite children to select the toy, *adaptive features*, which highlight the potential for the toy to be used in more than one way, and the *pragmatic affordances* which are the core affordances of a toy, and likely what it was intended for. The adaptive and attractive affordances can be seen as hedonic, in comparison to the pragmatic

affordances, in that the hedonic affordances are meant to satisfy a need to feel happy or stimulated in some way (Balzan, 2018).

Toys and other materials can afford activities specific to different domains of a child's development, such as equipment on a playground affording gross motor activity, or a lacing toy affording fine motor practice. Similarly, different types of play, which we can relate back to the developmental stages in early childhood (Casby, 2003), can be attributed to, or afforded by, different artifacts. For example, dress-up clothes, dolls, and toy cars can easily afford dramatic play and have been shown to do so when children interact with them (Rubin & Howe, 1985). Similarly, some toys afford activities that might be classified as solitary play, such as arts and crafts or building with blocks (Rubin & Howe, 1985). In addition to what types of play a toy might afford, there are also elements of quality that come with the affordances, such as better engagement and attention, which for young children might mean how long they look at a toy or a play partner, versus if their visual attention is elsewhere in the room. For example, if while playing with a puzzle that is somewhat challenging, a child maintains visual focus on the puzzle pieces and on the board, and potentially on a play partner, the puzzle obviously affords fitting shapes and problem-solving, but it is also affording sustained attention. However, it is recognized that these measures are not always infallible indicators of the quality of a toy as some electronic toys might demand attention solely by activating the orientating reflex of infants and not having their attention frequently redirected by an adult, as they would be with a more traditional toy (Miller et al., 2017). If toys such as a dollhouse, cash register, or set of blocks might enhance engagement (Balzan, 2018), then perhaps there are other areas of children's development that can be targeted with the affordances of a toy. Some toys can afford social interactions if they are to be used by more than one person at a time, or if a child cannot

complete the task alone. Classic work by Rettig et al. (1993) used timeless toys that can still be purchased today such as dolls, wooden blocks, toy cars, and playhouses in order to promote social interactions between children ages 3-5 with and without disabilities in a childcare setting. It was found that the type of toy present dictated the frequency of social interactions between the two children, and the presence of a toy that was thought to afford social interaction was more influential than simply having a typical peer present without a toy. The aforementioned social toys, in comparison to the 'isolate' toys of play-doh, puzzles, books, and coloring materials increased the number of social interactions among peers both in an inclusive setting and in a playgroup of four children with disabilities (Rettig et al., 1993). The findings suggest that interpersonal interactions can be afforded and even promoted by certain types of toys and that the enhancement of the interaction is due to more than simply the presence of a toy but rather the type of play afforded by the toy based on its intended use.

Interaction Affordances

If toys can afford interactions between peers, there is also the potential that they can afford interactions with adults, and impact different characteristics of these interactions. The majority of the literature examining the affordance of play interactions with adults looks specifically at the type of language used including the frequency and diversity of the words said while playing with a variety of types of toys. For example, when engaging with toys that have been attributed to dramatic play, such as pretend items from a grocery store, parents and children between the ages of 2 and 5 were found to engage in more co-operational talk and simple information exchanging (Leaper & Gleason, 1996). When the same parent-child dyads participated in an activity that was considered construction play (assembling a large toy car), the talk was mostly centered on problem-solving exchanges and utterances related directly to the

task at hand (Leaper & Gleason, 1996). Though the researchers of this particular study were interested in the stereotypical gender differences in these interactions, the play activity itself was found to be what dictated the type of talk rather than the gender of the child (Leaper & Gleason, 1996).

Play interactions with toys can afford not only an enhanced language experience (Weisberg et al., 2013b), but also provide opportunities to introduce new concepts through verbalizations. Certain toys afford the inclusion of unique words, such as the name of shapes and other spatial language that might not be commonly used in other interactions or experiences. Offering novel twists on familiar toys, such as a shape sorter with irregular shapes rather than the standard set, can even increase the number of named shapes (Verdine et al., 2019). These interactions are afforded by the type of toy present, but also by the adult's role in guiding the children's play. When playing with blocks, for example, children of 3-5 years experienced an overall enhanced exposure to spatial language, but this frequency was increased further when the parents engaged in a guided play activity with their children to assemble a toy garage (Ferrara et al., 2011). One specific study sought to link toy type with the communication between parents and their infants during a typical play interaction. Across three different types of toys, books were naturally rated as a top producer of language affordance, followed by traditional toys, and digital toys were found to afford the least amount of language, no matter the app or game being used (Sosa, 2016).

Digital toys have been compared to traditional toys across several studies in order to determine what benefits they might hold. Consistently the shared non-digital toy play produced more language and overall communication between parents and children than digital toys (Ewin et al., 2021). Miller et al. (2017) found that even for infants, the play interactions with traditional

toys resulted in more communication in the form of gestures and vocalizations, and parents were more likely to redirect the child's behavior more frequently than when playing with a digital toy. Similarly, even when using an app that produced the name of certain shapes, the shared playtime with a tablet resulted in a clear reduction of overall language used by both parents and children. There has been substantial evidence to support the idea that traditional toys afford more communication during interactions with adults, but with a wide variety of non-digital toys available, it would seem likely that some afford interactions more readily than others. These findings together indicate that the design of the toy, as well as the type of adult support offered, are both heavily influential in what interactions are likely to occur during joint play with a toy. However, interactions with a teacher might be classified as learning while interactions with a parent or peer might be seen as play. Though the line seems to be blurry from an onlooker, some literature has examined how some adults differentiate between play and learning.

The Differences Between Play and Learning

Adults' Values in Play and Learning

The trend to focus on academic skills earlier and earlier in life has, in effect, replaced the accessibility and allowance of play for many children (Ginsburg, 2007), and this trend seems evidenced by changes in how play is studied. A review of work over 30 years found that the play children engage in is actually changing because the focus in early childhood education, rather than being on building social skills and play skills to learn about the world, is on building required pre-academic skills before children enter kindergarten (Lillard, 2015). More recent studies of non-digital gameplay examine cognitive outcome variables, again with a goal of finding educational benefits of play (Lai et al., 2018). Aside from researchers, teachers have also been trained to put an emphasis on learning outcomes and academic skills. Sherwood and Reifel

(2013) interviewed preservice teachers, most of whom were planning to enter the early education field. The students seemed to have a clear understanding of the differences between what was seen as play and what was seen as non-play learning. It was found that when compared to skill-based learning, play was deemed "valuable and nonessential" (Sherwood & Reifel, 2013). So while play was thought to be valuable to children, it was not seen as essential in the eyes of these students as the learning that would happen in non-play experiences. If the professionals in the field of child development are valuing play less, then it is only logical that parents would follow in the same direction. Some parents even quantify the value of play they observe in their children as being higher if there is an obvious learning element or component involved (Fisher et al., 2008). The values parents place on play and its different types have implications for how they might select and purchase the toys for the home.

Factors Influencing the Toys Selected by Adults

The Selection of Toys by Parents

From infancy, the toys that children are drawn to in situations outside the home, such as childcare, have been found to replicate those with which the child is most familiar, typically those available within the home (Boe & Woods, 2018). Given the dearth of literature focused specifically on how teachers select toys for their classrooms, it is perhaps useful to capture a broad understanding of what is currently known about how other adults, like parents, select toys. Through interviews, both parents and teachers have recognized the educational benefit in most toys, depending on the circumstances and level of adult support provided (DeCortin, 2015). However, a perceived educational value is still integral in mothers' decision-making processes with respect to which toys they would select for their own children (Richards we al., 2020). Primary caregivers of children 0-24 months old were studied about their beliefs around toys,

both traditional and digital, before and after reading a descriptive advertisement. Though the participants were more likely to select a traditional toy before reading a description, they became more likely to favor an electronic toy when the advertisement read included a mention of developmental benefits (Hassinger-Das et al., 2021). These toys are then seen to transition from simply digital toys, to then being educational toys, changing the categories to which parents perceive them to belong.

From a consumerist perspective, parents have been found to purchase toys for several groups of reasons, as found by Al Kurdi (2017). Using a self-administered survey, parents cited use-related factors as being the most influential in what toys they ultimately chose for their child. These factors included both safety and durability functions, but also how long a child would play with the toy and how flexible the toy was in being used in multiple types of play. Another study was conducted to investigate what motivated a parent or prospective parent to purchase a toy that was marketed to their child's gender or to the opposite gender. Interestingly, the adults interviewed were heavily influenced by their own experiences such that having a favorite toy that was in a specific category, or having interests in that category, made them more likely to purchase a similar toy for their own current or future children (Weisgram & Bruun, 2018). While parents' motivations for choosing toys might be infinite in number, there has at least been an attempt to understand them. However, in order to understand what toys are going to be present in a classroom, it might take looking beyond empirical data and studies to gain insights.

Toy Requirements in the Classroom

Perhaps one way to gain insight into what toys a teacher would select or have available in a classroom, despite a lack of literature on this topic, is by examining what is considered to be high quality on a common measure of classroom quality. The Infant/Toddler Environment

Rating Scale-Revised Edition (ITERS-R; Harms et al., 2006), which is used for childcare classrooms with children ages birth through 30 months, is a tool used by many state regulatory systems in the United States and by researchers to assess global quality. Though the ITERS-R scale measures a range of characteristics of the classroom, such as furnishings, interactions, routines, and program, there are six areas, plus an item related to books, that pertain specifically to smaller, loose parts available in the classroom. The six areas are not all rated solely on the toys or materials themselves, but also the overall availability and use of them, though many areas are rated on the number of toys and the diversity of type. They include materials for art play, sand and water play, dramatic play, block play, music and movement, and fine motor/manipulative play.

The art materials appropriate for the toddler or two-year-olds include paints, play-doh, chalk, and crayons, and classrooms are rated higher for more variety, requiring at least three different types in order to achieve the highest level (Harms et al., 2006). For sand and water play the toy types are not as specific as in some of the other areas but can include any toys that float or that afford digging in the sand such as a shovel and pail. For pretend play or dramatic play materials, the highest level score must include two of each example given: stuffed animals, dress-up clothes, child-sized furniture, cooking materials, plastic foods, dolls with their furnishings or accessories, and toy telephones. This item seems to hold more value in the eyes of the measure given that there is a higher requirement in both number and variety than any other item in order to achieve “excellence”. Block play is another area that includes toys and while the item is named simply “Blocks”. It is not possible to score well on this item without also having other construction-related toys such as trucks, people, and animals, in addition to three sets of blocks. Musical instruments and other musical toys are rated on how regularly they are rotated,

with only five instruments being required at any given time. Lastly, the fine motor play and manipulatives have a specific list of toys to guide selection from the measure, including toys such as pop beads, shape sorters, and simple puzzles. But again, the highest score is given when toys are rotated and when there are varying levels of difficulty, which is something not mentioned in any of the other items. Since fine motor play is seen as specific for skill-building, classrooms are graded by the variation of the skills provided by the toys, acknowledging that the toys listed provide the affordance of specific fine motor movements to train and master. In addition to the mere presence of the toys in the classroom, the majority of these material-related items are evaluated based upon how the teachers use them and include them in play interactions with the children in the class.

The Role of Adults in Toy-Mediated Play

Weisberg et al. (2013b) argue that the most impact from play is likely to come when an adult is engaged in actively guiding the child to support and maximize learning provided by the activity. The practice of guided play can be conceptualized as where direct instruction intersects with children's play and self-guided learning (Weisberg et al., 2013a). The practice involves establishing the environment to be equipped with ample opportunities to discover something new, and then the adult involved follows a child's lead and scaffolds learning, all while maintaining that the child is in control of their own engagement and learning (Weisberg et al., 2013a). Vygotsky's concept of the ZPD is applicable and necessary in this type of interaction. When support given by teachers is individualized to the student, their interests, and their culture, these play interactions are likely to lead to subsequent self-guided experiences by the child, promoting their independence in learning (Trawick-Smith & Dziurgot, 2011). This phenomenon reflects more closely the new understanding of *obuchenie* such that the teacher can provide

support, but only when the teacher is actively learning from a child what they need will the interaction achieve its maximum potential in promoting the child's learning (Scrimsher & Tudge, 2003).

One aspect of a scaffolding interaction that has the potential to be a point of intervention is the types of questions and comments a teacher makes which spark exploration on the part of the child. For example, some studies have examined what types of interactions (i.e., different types of questions, instructions, or modeling) might initiate a child's investigation or prolong engagement with a toy. When an interaction is classified as pedagogical, it insinuates that there is a more knowledgeable person in the interaction who is asking questions, giving directions, or modeling an action with the intention of not merely retrieving an answer or imitation from the other person, but that the overall goal is to instill new knowledge and effectively teach something new (Jean et al., 2019). For example, with a novel toy containing several different functions and manipulative parts, children who experienced a type of pedagogical interaction concerning only one function of the toy failed to attempt to explore the other options, stifling the interaction with the toy because they presumably assumed there was nothing else of worth to be discovered (Bonawitz et al., 2010). Conversely, when a pedagogical question was asked in an effort to scaffold attempts towards a specific goal, children were more likely to persevere and try several different ways to accomplish the target function of the object or toy item (Jean et al., 2019). This suggests that based on the end goal of the interaction, and possibly the features of an object or toy, the ways in which teachers lead children in play can have implications for how successful they are in utilizing the toy to its fullest, or in how effective the interaction with the toy might be overall. However, as suggested earlier, this interaction can only achieve the optimal outcome if the teacher is actively learning from the child what is needed during the exchange (Scrimsher &

Tudge, 2003). Not only will a teacher-learner interaction involve following the child's lead, but also being sensitive and adjusting to the child's current developmental level so that child might feel more capable of engaging in an exploration independently the next time they engage with the same toy (Trawick-Smith & Dziurgot, 2011).

Existing Gaps and Limitations

Although work examining the use of toys in play has been conducted for decades, several gaps still exist, particularly in recent literature. Very few of these studies seek to understand what inspires a teacher in an early education classroom to select a toy for their classroom or to bring it into an interaction with a child. Though more is known about how a mother might engage with a child in play with a toy and what toys afford in these situations, there exists the potential that the affordances ascribed to certain toys could be different when a teacher enters into an interaction given the teacher's knowledge of child development and scaffolding strategies. Similarly, the categories of play and toys which exist might consider play development but seem to not address the line between what toys might actually be considered learning or educational materials, or what constitutes such materials and differentiates them from toys.

Demographically, the majority of the studies mentioned collected data pertaining to children ages 3 to 5, who have entered into preschool level in preparation for formal schooling. However, limited research is available on how children just before this stage interact with toys and how the toys deemed appropriate for this age group might afford interactions with adults, particularly teachers in the classroom.

While the recent focus in empirical work has been placed on evaluating the usefulness of high-tech digital toys that are new to the market, traditional toys have also continued to grow and evolve, but less focus has been placed on maintaining current research on these toys. New non-

digital toys continue to be released and increase in diversity of function and affordance, so a gap exists in addressing how the non-digital toys emerging, particularly those with an educational focus, might offer new or different affordances. Although some studies mentioned above have addressed non-digital toys and the types of interactions, the focus has mainly been on the amount of language produced and has missed the aspect of what types of toys naturally afford the initiation of interactions between children and adults. Given the age and amount of literature in this area, these gaps are somewhat unexpected. The current study aims to address as many of these missing pieces as possible in an exploratory fashion. Three broad questions were derived from reviewing the existing research in this area. First, to establish a basic understanding, the somewhat ambiguous boundaries of play and learning in relation to materials must be defined in the mind of a teacher in order to determine what is considered a toy and how it is different from the rest of the materials in the classroom. Hence, the first research question for the current study was:

1. How do teachers of 2-3-year-olds conceptualize the difference between what they see as learning materials and what they see as toys?

To capture the concept of perceived affordances and what gives toys value in the classroom, two levels will be explored: the teacher-child interaction and the individual development of the child. The second research question will seek to understand how teachers perceive if a toy's design can afford an interaction between them, and the third question asked how the affordances may promote a child's own development and learning.

2. How do specific design characteristics of toys relate to teachers' perceived potential interactions with young children?

3. How do specific design characteristics of toys relate to how teachers perceive the potential of the toy to aid in a child's development?

CHAPTER IV: METHODS

Given the exploratory nature of this study, I employed a qualitative approach using semi-structured interviews with teachers who were employed by high-quality childcare programs in Central North Carolina. The purpose of these interviews was to begin to better understand how teachers viewed toys in their classrooms and what they valued most about them. The study was also intended to create a foundation on which to build future work.

Recruitment and Participants

In order to understand the potential that toys have in learning settings, teachers at highly rated childcare centers were interviewed about their beliefs and experience. This study recruited ten teachers across five childcare centers in North Carolina with ratings of five stars on their Star Rated License to better control for teacher education and quality of care provided. The Star Rated License system in North Carolina is based on a points system and points can be earned for child care facilities in two categories: program standards and staff education. Centers can also earn an additional point by exceeding basic standards. Part of the points accrued for program standards is based on the outcome of an age-appropriate environment rating scale, such as the ITERS-R (Hestenes et al., 2015).

Recruitment Procedure

Directors of randomly-selected five-star-rated early childcare centers in one county in North Central North Carolina serving children ages 2-3 were contacted first about the study. All childcare centers with five-star licenses serving the target ages range in the county were eligible and a Google Random Number Generator was used to create the order in which centers would be contacted. A total of 25 centers were emailed initially and 18 of those were contacted via phone. Of the centers that were not called, 2 were found to not be eligible due to being PreK locations, 1

was found to be a home childcare, 2 forwarded the email before the call was made, and the remaining were franchised locations that only had phone menus to be directed to corporate offices. Initial contact was made by email to explain the purpose of the study and who might be eligible. The emails concluded with the contact information of the researcher and a note that the researcher would call in a few days to explain more about the study. The second contact was made as a phone call to directors, reiterating what was explained in the email, and concluded with a request for information needed to either call or email teachers who might be eligible and interested in participating. The researcher then emailed teachers directly to explain the study. The initial email and follow-up communications each followed a pre-written script (Appendix B). Follow-up contact included confirming interest in participating and access to the Participant Information Sheet for teachers. The Participant Information Sheet (Appendix C) contained information about the protocol for Zoom interviews, including the fact that they would be recorded solely for the purpose of analysis and that quotes may be used in the final report anonymously, by use of a pseudonym. Recruitment occurred upon IRB approval of the study. After data collection, a thank you note along with a $20 electronic gift card was sent to all teachers who had participated.

Participants

Teachers recruited in the current study were currently teaching in classrooms with children between the ages of 2 and 3 years old (see Table 1). This age was chosen so the answers would capture the perspectives of teachers who engage regularly with children in the ages leading up to the preschool years, where pre-academic skills are typically expected. Teachers were between the ages of 23 and 50 (m =33.6 years old). Participants were 80% African-American, 10% white, and 10% American Indian, all of whom identified as female. Forty

percent of teachers sampled taught at centers classified as franchises (2 centers) and the rest worked for Early Head Start locations (3 centers). One teacher taught a class of 3-4-year-olds, and one teacher taught a class of mostly 3-year-olds. The rest were in 2-year-old classrooms, although some covered a range that included young three-year-olds. Four teachers had Associate's Degrees in Early Childhood Education and the remaining teachers all had a Bachelor's degree or equivalent in either Early Childhood Education or Human Development and Family Studies, aside from one teacher whose degree was in Biology. Three teachers were either a lead teacher or the only teacher in the classroom, and the rest were in co-teacher positions. The length of time working in the field of birth-kindergarten ranged from 1 year to 30, with an average of 9.1 years, and, on average, 3.5 years in their current positions working with children in this age range. Two teachers reported having continuity of care, so they moved up alongside the children in their classroom throughout their time at the center. The rest reported their current position being with either infants and toddlers or two-year-olds.

Table 1. Teacher Demographics

Pseudonym	Age	Years in ECE	Years in Current Position	Title	Race	Center Type	Education	Field	Average age of children in classroom
Amanda	41	12	4	Co-teacher	African American	Early Head Start	Associate's	ECE*	3
Ashley	41	30	7	Co-teacher	African American	Early Head Start	Associate's	ECE*	2
Emily	23	1	1	Co-teacher	African American	Franchise	Bachelor's	Other	2
Hannah	25	3	2	Co-teacher	African American	Franchise	Bachelor's	HDFS**	2
Sarah	32	3	3	Lead Teacher	African American	Early Head Start	Bachelor's	HDFS**	2
Samantha	35	12	5	Lead Teacher	American Indian	Franchise	Bachelor's	HDFS**	2
Taylor	27	2	0	Lead Teacher	White	Franchise	Bachelor's	ECE*	3
Alexis	32	11	4	Lead Teacher	African American	Early Head Start	Associate's	ECE*	3
Elizabeth	50	12	7	Co-teacher	African American	Early Head Start	Associate's	ECE*	2
Madison	30	5	2	Co-teacher	African American	Early Head Start	Bachelor's	ECE*	2

Note. *Early Childhood Education **Human Development and Family Studies

Measures

A series of 15 questions were asked in semi-structured interviews with each teacher individually. During each session, teachers were asked background demographic questions and 15 open-ended questions designed to elicit responses relevant to each of the identified research questions. The interview began with the demographic information as well as rapport building by asking first about some of the teacher's favorite toys (item 1) and another question regarding who in the center is responsible for selecting the toys present in the classroom (item 2). The third item of the interview pertained specifically to the first research question and aimed to capture how teachers define a toy and what makes it different from other learning materials. The second research question was addressed by three items in the interview (7, 9, 10) asking what types of toys teachers bring into interactions or what would make a teacher join a child in playing with a toy. These questions sought to understand the ways in which toys might provide an affordance for initiating or enhancing interactions between the teacher and a child or children. Three questions (5, 11, 12) were related specifically to understanding how teachers perceived the ability of certain features of a toy to aid a child in their development and learning by asking teachers what about a toy might help children learn from it or might make it suitable for children of varying abilities. Five questions (1, 4, 6, 8, 13) had the potential to address research questions two and/or three, depending upon the answers given, and hoped to address what teachers value most in a toy.

The 13th question had three parts, contributing to the total of 15 questions asked. This final item captured in a different way what teachers value in toys by allowing them to view pictures of common toys and talk about them (see Appendix A). This list of toys was created by

overlaying the Play Pyramid (Kudrowitz & Wallace, 2010) with the recommended high-scoring materials listed for toddlers in the ITERS-R (Harms et al., 2006). Two toys from each apex of the Play Pyramid were selected from the list. The apexes of play activity matched well with three of the categories of materials from the ITERS-R (Harms et al., 2006), namely fantasy to drama, construction to blocks, and challenge to manipulatives. The areas of musical instruments and sand and water could have different classifications but would likely be considered sensory play. Art materials as a group did not map on clearly to the play activities on the Pyramid. For this reason, one toy was selected from each corresponding classification, and one was selected that crossed classifications. For example, a dramatic play material, such as a doll, would map onto fantasy from the play pyramid, but so would a Bulldozer truck that is classified by ITERS-R as being construction play. In order to avoid interviews taking too long to complete, and to learn what toys are valued more, teachers were asked to choose three of the eight pictures of toys and explain why they chose those toys and how they would use them in their classrooms.

Pilot Study

Before the formal study began, a set of two pilot interviews were conducted with graduate students who had previous experience in the classroom with young children. The point of the pilot study was to ensure all questions were clear and easy to understand and that no two questions were redundant or led to similar answers.

Data Collection Procedures

Data from qualitative interviews were collected in the first half of the Spring semester 2022, in order to allow time for sufficient recruitment and to be courteous of teachers' schedules around the holiday break. Scheduling occurred over email and concluded with an emailed invitation to attend a video conference at a time that worked well for the participants. Teachers

participated in semi-structured interviews conducted over Zoom utilizing the pre-written interview questions (Appendix A). The researcher maintained confidentiality by conducting all interviews in a private room. For video conferencing, the Zoom meeting required a direct link or a password in order to be admitted to the meeting with a unique meeting ID. The interviews were recorded and saved to the cloud on Zoom and transcribed. All mention of the participants' names were replaced with pseudonyms before any coding or analysis took place. The participants' true identities were kept on a physical document locked in the researcher's office. Transcripts were uploaded to an encrypted cloud-based platform and were managed locally on the researcher's computer in order to be imputed into the coding software.

Analysis

The answers to the interview questions were transcribed and checked for accuracy, then analyzed by the researcher and another graduate student for reliability. The themes were derived by both inductive and deductive methods (Braun & Clarke, 2006). An early review of answers during proofreading acted to initiate phase 1, *familiarize yourself with the data*, and begin phase 2, *generate initial codes*, in the six phases of thematic analysis as proposed by Braun and Clarke (2006). Transcribed responses were coded in a Word document and stored on Box for reliability comparisons and organization. The initial codes generated were created to simplify the main idea or ideas of each answer given during the interviews. Thirty percent of the files were double coded by a secondary coder to establish reliability and to ensure that the participants' original intentions were being maintained in the analysis and reporting. Any discrepancies were resolved between the coders and the agreed-upon code was used in the analysis.

In phase 3, *searching for themes,* all codes were analyzed and grouped into inductive themes first, where themes emerged without being influenced by the researcher or previous

literature (Fereday et al., 2006). In order to detect patterns in the coded answers across all respondents, the thematic analysis was conducted by the researcher using QDA Miner Lite qualitative coding software. The researcher first coded for inductive themes across three files and created a "theme bank" of the themes detected. The reliability coder then used this theme bank to code for themes in the same 3 files and was also encouraged to add any new themes that were not present on the code bank. Once both coders resolved any discrepancies, the remainder of the files were coded by the researcher for inductive themes. The researcher reviewed the data with respect to the research questions to determine if each question had been answered by the inductive analysis. Once a gap was identified, it was addressed via deductive analysis. An additional 30% of files were double-coded for the reliability of deductive themes, meaning that the secondary coder was exposed to a total of 90% of files across the three rounds of coding.

Based on the themes detected by both inductive and deductive coding, phase 4, *review themes,* consisted of creating a thematic map to organize more and less prominent themes per research question as well as themes that emerged in addition to the original research questions. The themes that resulted from the coding process then became subthemes once they were separated into categories. In phase 5, *define and name themes,* the now sub-themes detected through the coding process were grouped into three broader main themes. The main themes were then labeled and clearly defined. Quotes were found as examples of each theme and subtheme. Finally, in carrying out phase 6, *produce the report,* themes were overlaid onto the research questions and then written into the final report of the results.

Positionality Statement

In order to be transparent in the methods and analysis of this data, I believe it is important to state what biases and beliefs I might be carrying into this study. I am a proponent of play by

nature and by trade and have been throughout my life. My own definition of play has evolved over time. I associate play with fun and enjoyment and believe that everyone has a right to play at every age. I also believe that anything that is intrinsically motivating can be considered play and this often distinguishes play from other non-play activities. My schooling at previous institutions as well as my previous career both emphasized a focus on developmental milestones and that children's play activities, both with and without toys, should contribute to growth and progression. As a previous Developmental Therapist, I viewed play as 'children's work' and saw first-hand the importance of utilizing available objects in the natural environment as tools for intervention and learning. In this position, we were taught if children could learn play skills, their development would follow. I believe in the power of play and view it as the method by which children learn best. Though I was only in the classroom with two-year-olds for a brief time, I believe that early childhood teachers have the opportunity to interact with children and toys together and, with their knowledge of child development, use these objects to their highest potential. I believe toys are created and marketed in a way that does not always lead the consumer to intuitively know how to use them appropriately, regardless of the age listed on the packaging. I view informal learning through play as a union of education and intrinsic motivation that should be encouraged and enhanced throughout life, whenever possible. I value experiences where teachers can work with children as equals who are both open to learning from each other. My current training has cultivated in me a valuing of a child's independence and self-guided learning through all activities, including play, and that children will learn best when the activity in one in which they are interested. This value placed on child-led activities is also present when examining different curricula and approaches to teaching, such as favoring naturalistic learning opportunities and incidental teaching practices. Additionally, I believe that

high-quality interactions with teachers enhance experiences for children with teachers who can offer support while still following the child(ren)'s lead.

These biases were recognized throughout the process of collecting and analyzing the data. Rather than look for specific words, I looked for their underlying meaning. I worked to limit any thinking that would bring my own voice or perspective to the answers reported. I was mindful to not infer meaning where there was none and to not consider any theory or literature until the last stages of analysis. While working to stay as objective as possible, I also relied upon the support of the secondary coder.

The teachers sampled for the current study were dissimilar from me in terms of age, education, race, cultural background, and approaches to teaching. Thankfully, the reliability coder for this study also differed from me in age, race, and research background, meaning that she brought with her a perspective different from mine and with fewer relevant biases in terms of formal knowledge of play and of curriculum or teaching styles. Sharing a common self-identified race as 80% of the sample, she also contributed to ensuring the integrity of the teachers' statements by helping to accurately represent African American English Vernacular in the coding process. Together, through following the analysis phases, we were able to distill the core meaning of each answer so that these were then the basis for the creation or identification of the themes.

CHAPTER V: RESULTS

With guidance on thematic analysis from Braun and Clarke (2006) combined with the exploratory nature of this study, the following discussion of the results is meant to convey a vivid description of the dataset as a whole and to provide descriptions of the main themes and subthemes that emerged. For this reason, the results are presented under three broader themes that resulted from grouping together subthemes. For the reporting of the results, each theme and subtheme is discussed as they pertain to each research question.

Table 2. Defining the Main Themes

Main Themes	Definition
The **impact** of the toy on the child	A statement made about an element of a toy that is specific to the toy-child relationship and is not something in the control of the teacher or toy designer.
The **perceived use** of the toy in the classroom by the teacher	A statement made regarding how a teacher might behave with a toy or perceive its potential use in the classroom.
The **design** elements of the toy	Characteristics of a toy mentioned that are only within the control of the toy designer

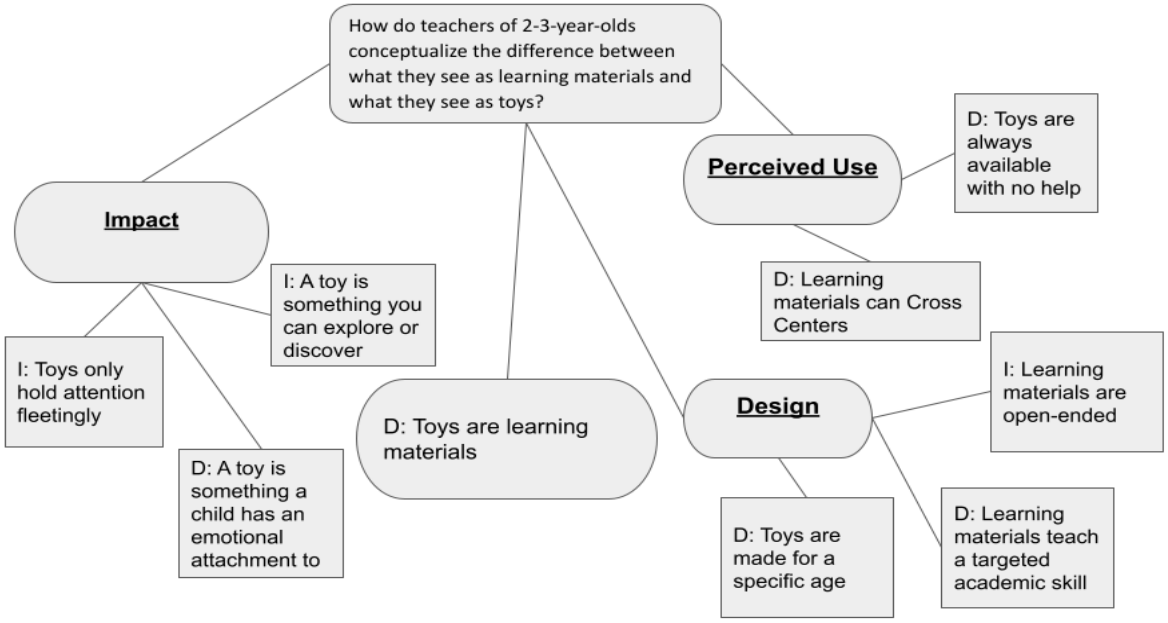
The three main themes that emerged from all answers collected from the teachers were the *impact* that a toy has on the child or class, the ways the toys could be *used* in the classroom, and the *design* characteristics that make it useful (see Table 2). Commonly throughout the interviews, regardless of the question asked, it was apparent that all three of these themes must come together for a toy to be particularly beneficial or have value in the eyes of the teacher. The *impact* of the toy on the student or class was a specific effect that the toy might have that was particular to that child or children and was not something that could be controlled by the teacher, nor by the designers of the toy. The second theme of the *perceived use* of the toy related to how the teacher could behave with the toy or view the toy and its potential. Lastly, the *design*

characteristics of the toy were seen as the intentional decisions that could be made by toy designers that might lead to enhanced experiences with the toy once it was in the classroom.

Though some of the subthemes derived inductively applied to the first research question, a deductive analysis was used to fully understand the teachers' answers. For the second two research questions, the main themes of *perceived use of the toy in the classroom* and its *impact on children* were both derived through inductive analysis after examining recurring subthemes in the entire set of data. A deductive analysis was conducted to find the specific design characteristics that might make the perceived use and impact of toys more likely or apparent, which was necessary to fully answer each research question. Answers that were coded into subthemes were then grouped into these three larger categories that became main themes. Theme maps of all main and subthemes were created for each research question and for additional findings.

Research Question 1

Figure 3. Theme Map for Research Question 1



Through the inductive analysis two of the three main themes, impact on children and design characteristics were identified in the data, while deductive analysis led to the main theme on the perceived use of the toy or material as well as several of the subthemes. Each subtheme is shown in Figure 3 as a branch off of their corresponding main themes. The subthemes that appeared inductively are indicated with an "I" and deductively derived subthemes are indicated with a "D". Though many teachers each had unique definitions of what made a toy, the subthemes detected were consistent with the three broad themes. Regarding the impact of the toy on the child, teachers cited three subthemes of attention and engagement, emotional attachment, and exploration as different ways to distinguish toys from learning materials. Regarding the perceived use of the materials, two subthemes of a material being able to cross centers and being available with no help both distinguished learning materials and toys. Finally, three subthemes related to the design of the toy or material which included how open-ended the material is, if it targets academic skills and if it is designed for a specific age or age range of children.

Impact of the Toy or Material

Attention and Engagement

First, a subtheme of the impact of the toy on the classroom was the ability to hold the attention or engagement of the children. For one teacher this appeared as the defining characteristic of a learning material, versus what counted as a toy: Amanda stated, "So for me a toy, I would say something that just kind of it'll spark their interest for a few seconds and then they'll put it down and then to something else". Conversely, the learning materials were seen by Amanda as something that would result in prolonged engagement and attention because they could be used for more than one activity:

> Like you can do so much more with learning tools... if I would want more from them, then I will actually get out some manipulatives or we'll go in blocks and we'll build and um expand on their- "well what are we building? Are we building a house? Are we building a castle? Are you building a store?" I can do more, expanding on their knowledge when it comes to learning tools.

Emotion

A few teachers identified that emotion or emotional attachment was something that made a material a toy rather than a learning material. This was specific to a toy-child pairing when a child has an attachment to a specific toy for any reason, or some teachers also identified that a toy is something that children can use to express themselves. For example, Emily used this feature to define what she saw as a toy: "So a toy I feel like is something that a child is very attached to… a toy is more so, something that a child's attached to." Similarly, Madison said a toy is something that a child can use to "express their feelings or express play". Both of these quotes show that these teachers see toys as having an emotional component in some way, which is something that learning materials would not have. This quote from Madison was the only mention of 'play' being associated with a toy.

Explore or Discover

Another inductive subtheme that emerged concerning the impact of the toy, but might be reliant upon other factors such as design, is the notion that a toy can be explored or has qualities about it that can be discovered and are not always apparent at first look. Alexis used an example to convey how a toy is something that has elements that can be discovered:

> I'm gonna say a toy is a item, you can… get to know…For instance…[I have one child] he'll look at and be like 'Oh well, this has got wheels it's got other things'. It's other things

that comes with that toy to make the toy.

This idea of exploration and discovery was something that occurred in several points of the interviews, across multiple participants, but specifically arose for two teachers who saw toys as being something children can explore and discover.

Perceived Use of the Toy

Two subthemes that emerged under the main theme of the perceived use of the material were a toy's ability to cross centers in the classroom and, similarly, the potential for it to be available to children at all times.

Cross Centers

The ability for a toy or material to be used across centers is something that was common throughout the interviews. Samantha used this quality to define the learning materials in her classroom:

> ...I have natural blocks that are in construction center rather than putting them in science, because of like their shape and in fact, you know, like they're supposed to- a lot of people put them in science because they're natural blocks it's like literally having like the bark of a tree. They are in blocks because you can stack them, you can kind of build with them, you can roll them rather than saying this is just for this area they're able to take them everywhere and say 'okay magnifying glasses let's bring this over here, what do you see?'

Available with No Help

Similarly, when a material is out all day and children can approach it and interact with it as they please, with minimal or no restriction from adults, Hannah identified this as a way to

conceptualize what she saw as a toy in her room, whereas learning materials were something that might need to involve to the teacher more:

> So, for example, like the art shelf, I don't really consider those toys and they know that those are not toys so like they know not to go 'Oh, let me go grab all this paint and grab all these dotting markers' they know we kind of do that together.

Design of the Toy

Open-Ended

The last inductive theme that related to the definition of a toy was under the broader theme of design, and how open-ended the item is. Amanda conveyed this notion after discussing that toys engage interest fleetingly, she articulated that:

> But as far as um a learning tool, I will say like, um. I would say learning, I can I can do, different things with that. I could teach them science, math, um sort. Like you can do so much more with learning tools.

Again, the design characteristic of being open-ended is something that appeared commonly throughout the interviews but was specifically mentioned once in reference to the distinction between toys and learning materials.

Targeted Academic Skills

Additionally, two teachers who had unique answers fell under the theme of toy design. These characteristics were quite concrete and easy to identify. Namely, Ashley defined learning materials as something that targets an academic skill such as math, matching, recall, or letters and listed the examples of learning materials that are in her room:

> …Some objects are dealing with math so they are doing a repetition of seeing recalling.
>
> …a puzzle that's dealing with certain type of pictures…. manipulative area where they

> doing a lot of hand-on and they doing certain stuff …little popsicles, they got the numbers on it. And they have to match them. …Oh, then we have the ABC blocks the little small wooden blocks…we got a toy where you can go fishing, so you pulling out the letters. So those are things that um require learning.

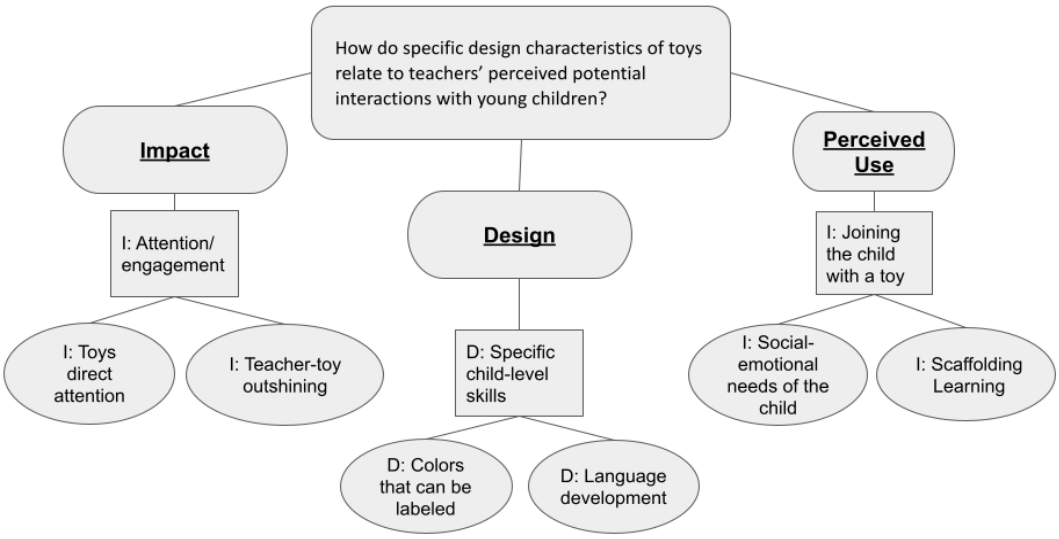
Toys are Learning Materials

Only two of the ten teachers mentioned that either anything can be a toy or that toys are types of learning materials, or that learning materials could be toys, depending on how they are used. Even with these two answers, one teacher who answered this way still had a clear definition of what she considered a toy: toys are something made for a specific age group of children, whereas learning materials are made for children of all ages. Taylor shared that "Everything can be a learning material, but things that are specifically made for a certain age group of kids that they can use to explore and learn that's what I would consider a toy."

In summary, teachers had differing answers about what defined a toy or made it different from other learning materials. The subthemes that emerged were still consistent with other answers relating either to the impact of it on the child, the perceived use of the toy, or the design of the toy itself. Toys were thought to be related to emotion, something a child can discover, and only holds a child's attention fleetingly. With respect to their use, toys were thought to be able to be available to children throughout the day and can be used independently. Learning materials were thought to be those which can cross from one center to another. Finally, in terms of design, toys might be made for a specific age group of children, while learning materials are thought to be open-ended and designed to teach a specific skill. Surprisingly, only one teacher did not make a distinction between the two.

Research Question 2

Figure 4. Theme Map for Research Question 2



For the second research question regarding the interactions that might be elicited from certain toy or toy characteristics, the inductive analysis produced subthemes related to the impact of the toy on the child and the perceived use of the toy, and deductive analysis was used to find the specific design characteristics of the toy that made these interactions possible. In Figure 5, each subtheme is again marked with either an "I" or "D" to indicate inductive or deductive analysis.

Impact of the Toy

Attention and Engagement

The impact of the toy on the child or children discussed the most regarding interactions with a teacher was how well the child would remain *engaged and pay attention*. However, this looked different for each teacher. Samantha shared that she was led to join an interaction with a child when they showed high levels of engagement with a material: "Usually it's like if they're

there for longer than two minutes, I might say okay well ‘Can I take your picture, so I can see, so you can see what you made? let's look at this’”.

Other teachers discussed bringing toys into an interaction with a child to enhance engagement in the interaction. Elizabeth explained that this can differentiate between children within a classroom, and often depends on learning styles.

> Some children prefer for you to have…learning materials compared to you just talking and showing them stuff because some kids are very uh visual learners. And some kids you know they are sensory so it depends on who you're dealing with.

Similarly, Amanda spoke about the benefits of bringing toys into teacher interactions, but that it could be beneficial for all children, not dependent upon their learning styles:

> I prefer to interact with a toy because, for me, I can think of so many things to help them with whatever so that I'm trying to teach them. And I feel like it's it's a visual thing. I'm more of a visual learner so I want them to be able to see it, feel it, touch it, smell it, touch those five senses, you know, in order to expand on their knowledge.

Several teachers shared similar insights that different situations would be more or less appropriate to include toys in interactions and that both having or not having toys included had benefits and may occur regularly throughout the day.

Toys Direct Attention

Three teachers, in particular, mentioned that interacting with children who do and do not have toys might impact their day in the classroom. For example, Amanda said that for her class, not having toys “makes the day longer” because her class might look to her for entertainment. Along with the idea of toys helping to direct attention, two teachers mentioned that the children in their classes exhibited more challenging behaviors when they are not engaged with toys, or

that toys can be a way to redirect attention when inappropriate behaviors are being exhibited. When asked about how play experiences with or without toys might differ, Sarah shared “This is where the challenging behaviors [start] coming in…I've definitely found that the busier they are the less chances they have to exhibit challenging behaviors. It’s very critical in keeping them engaged”.

Teacher-Toy Outshining

One interesting phenomenon that was articulated by several teachers was a notion that made a shared interaction between a teacher and child and toy difficult. This is something I have dubbed “teacher-toy outshining”. This happens when the interaction might become dominated by either the teacher or the toy, depending on where the child’s focus might be. If the child was more interested in the toy, they would seemingly ignore the teacher, but if the teacher was more interesting, the child might discontinue the use of the toy. The engagement of the child with the teacher was specific to how interesting the teacher was, or how interesting the toy was. Hannah stated,

> So like when they're in their free choice in their free time I do like sit down on the floor with them and I’m like engaging with them. But then also when you do get down on their level, then they just all just want to come sit in your lap. I have some clingy kids, they just want to come sit on my lap. And then that's a bonding time so then we're not playing with anything we're just sitting there talking they're giving me hugs, we’re discussing what mommy's going to make for dinner tonight, just literally anything

However, on the other hand, some teachers mentioned the opposite effect happening, where some children might be unable to interact with a toy and a teacher together, but that the

toy is more interesting than the teacher, so their attention is placed solely on the toy. Elizabeth stated,

> Some children you can't keep their focus long enough for them to have a toy and your interaction so depends on who I'm dealing with at the time...You know when they have something in [their] hand I feel like they're kind of distracted from the talking they're more focused on getting that thing together or apart.

Here Elizabeth is speaking to not only the importance of where the child might be directing the attention but that the interactions are often specific to each child. This leads to the subthemes related to the perceived use of the toy, which were all related to child-level factors.

Perceived Use of the Toy

Joining the Child in Their Play

Most mentions of how a toy is used and then might lead to interactions were based on the notion of letting the child and their play lead the interaction by teachers joining an existing play situation. Teachers often referred to joining children in their play as it was occurring or adapting the interaction to be specific to what children were interested in learning more about. By following the children's lead in their play with the toys, teachers were able to offer mainly two different types of interactions when they joined a child: meeting the social-emotional needs of the child, or observing and evaluating a child's knowledge, the latter of the two taking many forms.

Social-Emotional Needs

First, teachers identified that when a child is playing with a toy and might be showing signs of being upset, or frustrated, this leads the teachers to initiate an interaction to meet the need of the child. Some teachers mentioned that the emotional state of the child might mean that

they did not need to have a toy involved, while others would specifically bring toys into these interactions. Elizabeth mentioned that toys she typically reaches for are bears with different emotions on their faces, and these are used regularly to help children communicate how they are feeling. Similarly, Madison said that the type of toy she brings in would be specific to the child's emotions, whereas children who were sad or upset would cause her to reach for toys that are calming rather than a loud or bright toy that she would include if the child seemed happy, stating "If they happy I choose something with like loud sounds or bright and if they sad I chose like a puppet or a book…Just to warm them up a little bit."

Scaffolding Learning

Second, teachers also mentioned that their observations and the need for documentation or checkpoints would be reasons to join an interaction with a toy. In joining these interactions with the toys, teachers would often mention engaging in what they identified as either 'helping' or 'expanding'. If a toy offered teachers an opportunity to provide coaching through problem-solving, this would lead them to initiate an interaction, as described by Amanda:

> Um the shape sorter um at first they weren't able to like- you know you have a star, you have the oval, and sometimes I would try to put the Star in the oval and I'm like 'It's not fitting, is it?' so um. Again it's just trial and error, but that is a good toy that I like because, for one, it, It basically is, what you would call a... Is it self-correcting?

Teachers also explained that they would join a child with a toy if they could expand or scaffold the child, which was mainly done in two ways: asking questions or engaging in conversational language. The types of questions teachers used included open-ended questions regarding what the child was doing with the toy and reflection questions to guide children in telling about what they just did with the toy. One teacher, Samantha, articulated that even

between two different kinds of magnets, the kinds of questions that she could ask with one type of magnet were different than other kinds of magnets:

> I requested it, because I had .. the ones that look like the horseshoe. I had a lot of those but it's kind of like it's not the same whenever you can kind of like say Okay, like a positive and negative charge to where you can flip it over and say okay. “Why won't it stick.” yeah so it's kind of like having like those kind of like open questions…, like the (magnet) wands they stick together… they can kind of like flip them over then put like different colors together but it's like they're going ‘okay well why why won't this side stick to this side? Okay, if I flip it over it does’

Another teacher articulated the importance of having toys that might be able to facilitate different kinds of questions so that the same toy could be used with children across the developmental spectrum. She asked more involved questions for older children in the classroom, but then use simpler questions with the younger ones.

Some teachers said that conversational interactions were more likely to occur with a toy, while some said these interactions likely would not involve a toy. Ashley shared that one play center in the classroom that tends to facilitate more conversational talk is dramatic play.

> You gotta wait till they say “sit down” and then you know “well here’s some”. And you go from chicken to vegetables to this, to that, you’ll be like “Okay”, “you want some cake too?” so they just know serving you now you got this open conversation going on and they telling you like “Oh, we gonna serve you this drink you going to get some tea, you might have ordered water, but now I'm gonna give you this”, you know and then I’m like “um you served me without a spoon, where the spoon at?” “Oh wait a minute” and then they give you a fork. “I asked for a…” “Just use that one”

When thinking of how a toy might be used in an interaction, the majority of teachers' answers revolved around joining the child in what they are already doing with an object. The motivation for joining this activity might be that the child has an emotional need that must be met, such as crying, being alone, or being frustrated. Teachers spoke mostly of joining a child in play when there is an opportunity to observe or evaluate the child's knowledge, usually for daily developmental documentation. These interactions were reported to mostly include helping the child if they are having trouble with a toy, expanding on what they are doing in some way, or scaffolding their learning by engaging in conversational language or asking questions.

Design of the Toy

Much of what the teachers mentioned in reference to interactions was the use of the toy in the interaction and the relationship that the child has with the toy. Through deductive analysis, only one subtheme was uncovered in reference to the actual design of a toy that might help facilitate an interaction.

Specific to a Child's Skill

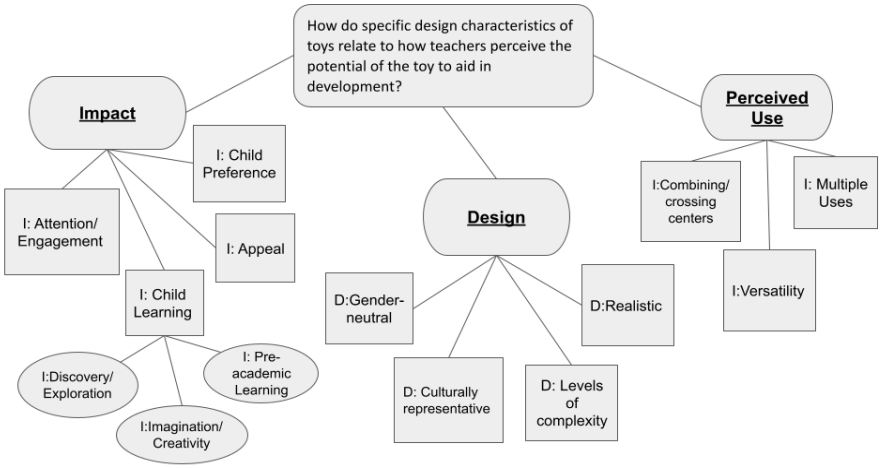
The characteristics that needed to be included in toys to facilitate conversation seemed to be related directly to children's skills and the facilitation of that skill. For example, Alexis expressed that she would join a child with a toy if the child was properly labeling something such as colors. For an interaction such as this to occur, the toy needed clear colors and either multiple parts that were different colors or multiple colors on the toy itself. For Ashley, this skill-specific characteristic was unique to her class this year. She reported that her current class was behind in language, so any toys or materials that might facilitate more language development would be the best toys for her to bring into an interaction.

For this year, right here, I will say I will look for more of a um language development toy where we're actually um having to pronounce words and putting them together... I will think of a game to bring into the language area. They could be somewhere…for instance reading area. I might add some flashcards over there to have them to you know … be able to name what it what is on that card. Just to build their vocabulary. Some words in order to talk, so I will actually add more to the library area and try to do a lot of picture reading.

The ways in which a toy can be used in an interaction were examined first inductively, which produced the main themes of the impact of the toy on the child and the toy's use in the interaction. Regarding the impact on the child, teachers mostly mentioned that they would join a child who is engaged with a toy, or that a child's attention is integral to the interaction, particularly when it includes a toy. The perceived use of the toy in an interaction was either to meet an emotional need of a child or to provide a scaffolded learning opportunity, motivated by daily teacher reports and documentation or learning assessment. Finally, a deductive analysis found that design characteristics that allow for a specific child skill would allow for interactions by having elements that provide a teacher with the opportunity to assess the child's knowledge.

Research Question 3

Figure 5. Theme Map for Research Question 3



The vast majority of the subthemes detected through inductive analysis pertained specifically to this third and final research question. Teachers' answers to interview questions, whether asking about interactions or children's skills, tended to fall on how the child would interact with the toy and the child outcomes of the toy use. Again, Figure 5 shows the organization of subthemes and which subthemes were derived from inductive or deductive analysis.

Impact of the Toy

Appeal

Several teachers mentioned that for a toy or material to aid in development and learning, it first needed to have an appealing factor to children, something that might be considered "eye-catching". Some examples of what might be appealing to children would be the sound the toy produces or the color of the toy. One teacher, Madison, even said when considering a toy for her classroom, one of the main considerations she has is if the toy is "bright or if it's dull". Some aspects of the appeal of the toy, such as if it is novel or familiar to a child, were also important to teachers and could be manipulated by rotating toys out of a closet or with other classrooms. Teachers were particularly concerned with how the novelty of a toy might relate to how engaged the child might be with the toy. Hannah had an example of something that is kept out of the sight of the children the majority of the time:

> Like I have houses, different color houses and each house is a color and it has a certain amount of people in it. I can't leave that down in their reach all the time, because all the pieces will be missing… yeah you start digging around in the cabinets and they're like "what are you doing? What are you getting?" and then all of a sudden, they all want to do it.

Elizabeth also reported seeing a similar pattern in her classroom when thinking of what characteristics of a toy might make it more likely to promote learning.

> Because if it's something they've never played with before of course they're excited, it's something new I've ever played with this. When we introduce something new it's like I want it I want it I want it", if it's something they've seen before it's like "oh OK nice" and then they throw it down

Child Preference

Similar to the immediate appeal that a toy might have to a child is the subtheme that the toys needed to be something the children prefer or are something they are already interested in. Particularly when asked to select toys from a collection of photographs, many teachers justified at least one toy selection by saying it is something that children love or that they ask for consistently. After selecting Playdoh from the photos, Emily shared "Playdoh it really actually um my kids ask for Playdoh all the time and I don't have it to give to them. They ask for it a lot so that would be something that, that I would probably have."

Hannah also shared that something she wished she had in her room would be to cater to children's preferences because at the moment, there are some centers that are not as interesting to the children.

> I wish I had more like toys and other other centers for so, for example, I wish that, like my music Center had more in it. So it looks kind of sad to me, and so they don't gravitate over there as much because there's like some microphones a couple drums and like a radio and some shakers. So now we're me and my co-teacher are trying to figure out Okay, how can we make this center more interesting to them. So I just recently added a

new rug in that area and that alone in the past 48 hours they have been on that rug in that area dancing…

Attention and Engagement

Several teachers mentioned that toys, in general, help to keep children engaged in play and that their engagement in the activity with the toy is critical to their learning. Madison said that without toys, children "seem to be more bored". A common measure for engagement was how long children played with a toy or how long it kept their focus. This theme appeared mostly when teachers were asked about children learning from a toy and if that looks different from engaging in play. Samantha stated, "I guess … I think of play like it's very quick and then it's kind of OK on to the next thing. Learning, you see, like their little wheels in their head like turning…"

Some teachers also mentioned that engagement and learning might be evidenced by the noise level, and how quiet the children are, indicating that when they are quiet and focused on something means that the children are more engaged and learning more. Elizabeth stated:

> I feel like when they're playing you hear a lot of noise. Like. They're like "come on, get in here, get that, hit that, do that". Then when they're learning, I feel like it's more quiet they're more focused. So I think when they're playing, it's noisy, when they're learning is quiet.

Child Learning

Not surprisingly, when discussing the benefits of toys across multiple questions, teachers discussed the importance of child-level skills and outcomes from interactions with toys. These ranged from simple activities or behaviors that occur in children commonly, to more complex

skills that were directly linked to academic or pre-academic outcomes. Three categories of learning skills appeared under this subtheme.

Imagination and Creativity. The most prominent of these was the skill of imagination and creativity, often associated with a pretend play situation. Although 9 of the 10 teachers mentioned imagination and creativity, they had very different ideas as to how this might relate to the toys that might be in these situations. Six teachers expressed that some toys can operate as a tool to facilitate imagination and saw value in these child-level experiences involving toys. A few teachers agreed with Ashley's views on how children of today have evolved to even need toys in order to engage their imagination:

> The kids of today um imaginary thinking is very limited. Teaching with materials is definitely something that they have to have. Even outside trying to watch them play. Some have it, some don't so it's like you're constantly teaching ... because they imaginary is … very broad. Without material or you teaching them um it's kind of it's kind of hard without the material.

On the other hand, a smaller group of teachers identified a belief that toys restricted this type of thinking and that once toys were removed, this would allow for more imagination because they did not have any materials to tell them how to play. Elizabeth explained:

> With toys, I feel like they're constantly discovering what a toy can do. Without toys, I feel like their imagination comes into play a lot more…You know when they have something in [their] hand I feel like they're kind of distracted from the talking they're more focused on getting that thing together or apart…But when you're just playing it's their own imagination working

Discovery and Exploration. The subtheme of discovery and exploration was also discussed not only as a perceived use of the toy but as a skill that children can develop with a toy. Some teachers saw this skill as being engaged by discovering specific things about a toy, such as a toy that has several moving parts or cause-effect mechanisms, whereas others mentioned that toys can aid in an activity that is already engaging a child's sense of exploration. For example, Taylor told a story of children being interested in an anthill that was found outside on the playground. After observing what the children were talking about, she went into the classroom to bring out magnifying glasses so that her children could look closely at the ants who were traveling in a line. In this way, the children are engaging their exploration and curiosity, which is directed towards something in the natural world but can be assisted by something that was seen by the teacher as a toy.

Pre-Academic Learning

Other child skills mentioned by the participants were arguably more pre-academic such as fine motor skills, counting or math skills, and color recognition. While color recognition was often coupled with other skills such as matching or sorting, math-related skills were mentioned as a skill that could be applied to several different types of toys. In the final item during the interview where they were asked to select three of eight toys, teachers even identified that counting and color recognition were their reasoning behind selecting the beanbag toss as one of their chosen toys. Manipulatives were often identified as a type of toy that targets several skills for children during a typical play situation, such as fine-motor skills and even problem-solving. After mentioning different types of manipulatives that children use to engage their problem solving and matching, Amanda concluded that "So manipulatives is my favorite... because I actually kind of see more cognitive skills and fine motor skills with them so yeah".

Perceived Use of the Toy in the Classroom

Similar to their differentiation of toys and learning materials, the notion of multiple uses was mentioned frequently as something that is valuable in a toy and would be beneficial for a child's learning and development. With respect to the ways that a teacher can potentially use a toy in the classroom to utilize these 'multiple uses', two routes were discussed: the ability for a toy to cross centers or be combined with toys from another center, and the versatility of the toy as the lessons change and adapt.

Combining and Crossing Centers

Several teachers mentioned that they prefer for a toy to be able to be used in multiple centers or multiple settings. For example, Samantha mentioned some small blocks that she has in her classroom that contain beads:

> I like toys that are not just for just one purpose, because it's like if there's something that you can do other stuff with, as well as learning from it, It just makes it a whole lot easier for the kids and it makes it easier for teachers… I asked specifically for the [blocks] that had beads, and it was like the little metal rings in it to where everything makes a different sound to where you can use it as a musical instrument if you want to….if it falls down from like a high point or low point is it louder softer? To where it's kind of like, I can incorporate different elements of learning whether it's music, language, math, science to where I can put everything in it.

Another way teachers reported using toys to cross centers was by combining two types of toys from two different centers. Hannah told a story of her children using the blocks to build a stage so that they could have a puppet show, combining the construction center with the puppets from the library area. Similarly, two teachers, in particular, mentioned that having toys that can

be flexible from inside to outside would allow for different types of play with that toy. For example, when asked what toys she wished she had in her classroom, Ashley said that she wanted a parachute, partially because it can be used both indoors and outdoors.

Versatility

Similar to crossing centers, teachers wanted to be able to use toys in their classroom no matter what skill or lesson might be the goal at a given time. Some examples that were given for these types of toys were things like playdoh, blocks, or coloring materials. Each of these can be suited to teach different concepts such as making planets out of playdoh or drawing different shapes. Child skills also were mentioned by Amanda in discussing a toy's versatility as its ability to teach different skills.

> I want to be able to have toys in here where I can actually say okay, so they are learning, um, they're learning this dimension, they're learning that dimension and also they're learning how to take turns. We can be [sorting] something by colors, we can sort things by numbers, we can sort things by size and shapes um so, to me, toys like that that … I can say "okay don't just count for me, but when you count, point to the elephant so that's one elephant, that's two elephants" so it's multiple things that we can do with the toys just not "Okay, this is the colors there's a yellow one, there's a red one, there's a blue one," but you can also tell me the size, you can also tell me how many there are so multiple ways to use one toy are like the toys that I would want in my classroom.

In addition to reporting that coloring was a favorite activity because it can be adapted to each different lesson, Ashley also shared that she likes to actually create games and materials to be more versatile and to be able to work on different skills as well.

> I would say um coming up with some type of game for them… I will make stuff … I also got it where they are touching and pointing as they look so these right here, if you can see it got the dots at the bottom, so there's one, two and three, so now they doing a three step, they can match it, count it, and do the dots, so it's different little things so that's one um little game

Design Characteristics of the Toy

With respect to what toys are the 'best' to have around the classroom and toys that are appropriate for a wide range of children, several themes emerged concerning how a toy is designed and what elements can only be controlled at a production level.

Gender-Neutral

Three teachers mentioned the importance of having toys that are gender-neutral or having toys that both boys and girls would be likely to play with. Though many teachers recognized that the girls in a class will have a favorite toy, often dolls, and boys of the class will have a favorite, often trucks, Alexis, Madison, and Taylor all mentioned the importance of having gender-neutral toys and making certain toys such as dolls or tools more acceptable for all children to play with while in the classroom. After saying she would like to have a toy tool set in her room, Taylor discussed having toys that can help break the stereotypical association with certain toys and gender.

> I want um not gender typical… I want to, I want to break the stereotype in my classroom so I want to make all toys available to everybody um so we do have baby dolls and I have a bunch of boys and [they] love to play with the baby dolls…

Madison also mentioned this as a way to make sure that toys are appropriate for everyone in the classroom by saying "I try to choose stuff that be neutral between both boys and girls,

that they both can you know play with". Though all three of these teachers mentioned the need for both boys and girls to play with different toys that might break stereotypes, several teachers mentioned gender as being influential in what toys they have chosen and what toys children like, such as Emily speaking about what toys she reaches for in interactions:

> I would say, like, for my girls, they love like the stuffed animals that they that are in our class... So I feel like you know stuffed animals are good and...For my boys I would say they like trucks a lot, they do like trucks a lot...

Culturally Representative

Often curriculum would guide the teachers to mention the value of having diversity among the dolls or people-like figurines in the classroom. Alexis referenced a book with recommended toys for the curriculum practiced at her center and part of these recommended toys was for baby dolls to be culturally diverse. Similarly, in the final item where teachers selected three toys, Alexis used this cultural diversity as her justification for selecting the baby dolls: "I would choose the babies…I say the babies first because it's like a variety. It comes with the furniture and the different cultures, different colors."

Elizabeth noted that she enjoyed the dramatic play center because it offered this type of diversity, and allowed children to explore and see different types of lifestyles or cultures during their play: "Another one is dramatic play because you can change it up to fit whatever lifestyle or culture you're talking about at the time, so that's one of my favorites". Because of this element, dramatic play was listed as one of Elizabeth's favorite play activities.

An aspect of cultural diversity that was only mentioned by one teacher was the diversity in children's own home life and neighborhoods. When selecting from the group of toys, Madison said "And I use the trucks to incorporate with different transportation and… how they get to

school or what kind of trucks they see in they community". Though other teachers had discussed having toys that were reflective of multiple races or cultures, Madison saw this as a way to represent children's own lived experiences through their toys.

Realistic

Having toys that are accurate replicants of what they are meant to represent was mentioned a few times by teachers as something that would not only enhance learning but also is something children seem to prefer. Amanda mentioned that some of her older children who are engaging in more pretend play have more intention behind what they are doing, so they like to be able to recognize an object in the room and relate the object to something they have seen and know how to use.

> I have children that like to um go in science and they'll pretend to have a garden, because we have flowers in there, and they like to take the little water, watering can and pretend to water the flowers and we have um that's for my…older two's… so they kind of use toys and they try to make it make sense.

Similarly, along with comments made by Taylor, it seemed as though realistic toys are a need in that they are not commonplace in what is found in some toys in the classroom. When asked about what toys she would like to have in her classroom, Taylor said "I would love tools and then not just any kind of tools like I said I don't like plastic. Toys I want realistic looking tools like I don't want no Mickey Mouse shaped hammer."

Levels of Complexity

Lastly, to enhance the versatility and ability to use a toy in multiple ways, as mentioned above, teachers mentioned toys that were made in multiple types that might span levels of difficulty or complexity. For example, Elizabeth mentioned that it is useful to have different

types of puzzles that might be more appropriate for children of different ages or abilities in the classroom, such as puzzles with or without knobs, and even adding elements like numbers to help children achieve the puzzle independently.

> For instance with puzzles, some of the puzzles have a little knobs, so you able to pick those out compared to a child that's already mastered how to do a puzzle. We have numbers on the back, so we number the bottom of the board, and then we'll put the same number on the bottom of the piece, so if they get confused, we'll be like 'okay look at the number on the back and find a number that matches.'

Another example made by Samantha is Lego's. While some Lego's might be bigger and easier to manipulate, as children in her room develop and age, having the slightly smaller interlocking blocks provides more of a challenge and is more appropriate for the children who are getting close to moving to the next classroom.

> So with like everyone, of course, loves Lego's but it's doing like I have these humongous like building blocks to where it takes a little bit more effort to stick them together and it's like I have like different shapes and it's kind of like giving my younger ones those but it's the same concept as the ones I have in my basket, so still working with like fine motor but it's like still the same thing, but it's… something that all of my kids can do.

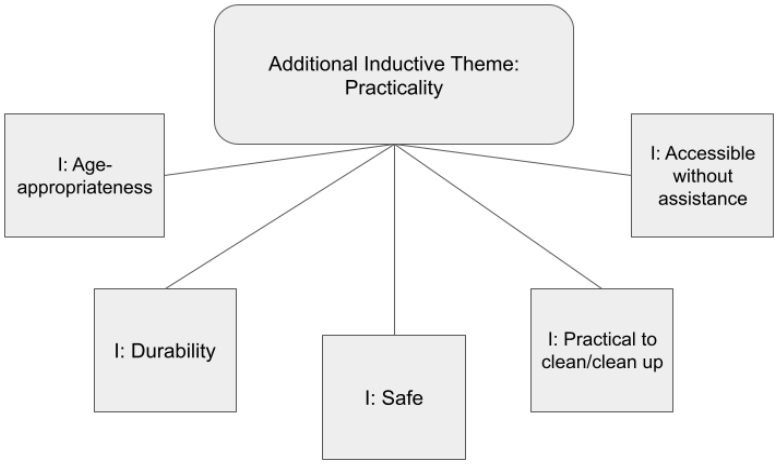
Given how broad of an age range and developmental range can be in a classroom, these teachers mentioned a range in complexity of a toy as a strategy for making sure they had toys that were appropriate for children of all developmental abilities.

The final research question was explored similarly to the second in that two main themes were derived inductively and the main theme of design was investigated deductively. Teachers mentioned that the impact that the toy has on the child would drive learning and development if

the toy had something that appealed to the child and if it was something the children were already interested in. Similarly, the toy needed to hold a child's attention to be impactful in their development and learning, and the toy needed to teach a child-level skill such as discovery, creativity, or other pre-academic skills. In terms of the perceived use of a toy, teachers saw them as valuable to a child's development if they could cross centers in the room, if they could be used for multiple different activities, and if they could be versatile from lesson to lesson. Lastly, the design characteristics of a toy that might aid in development included being gender-neutral so that all children would feel comfortable interacting with it. Similarly, a toy should be representative of different cultures so that children not only feel recognized and represented but also learn about people who might look different from themselves. A toy should reportedly be realistic to be closely related to what children see in their daily lives. Lastly, a toy should be designed with levels of complexity so that the same type of toy or play activity can be utilized by children of all abilities.

Additional Theme: Practicality

Figure 6. Theme Map for the Additional Theme



Through the inductive analysis, most of the recurring subthemes could be ascribed to one of the three research questions. However, one theme emerged that was not specific to these three questions but was not surprising. Namely, that toys, beyond all else, needed to pass a level of practicality before they could cross through the classroom doorway (See Figure 6).

Age-Appropriate

Practicality started with the toys being safe and age-appropriate. Nine of the 10 teachers mentioned that good toys were ones that were appropriate for the age of the children. There were also mentions that not all toys in the classroom felt appropriate for the range of ages that might be in one room. For example, classrooms with children who were two and turning three might have toys that were mainly suitable for the younger children in the classroom. One teacher even shared that sometimes the older children in the classroom spent time in a room that had all three-year-olds so that the toys might be more interesting to them. Amanda shared:

> I can see some of them, they get bored in there and they don't want to play with the toys that they're mostly like they call it ‘baby toys’ so I'll let them go to the three-year-old room classroom and play with those toys that's in that classroom.

One aspect of age-appropriateness that was only mentioned by one teacher was the consideration of the size of the toys or the size of clothes that are in the dramatic play area. Not only did the toys need to be appropriate for the children in terms of development, but Elizabeth identified this as being a key factor in making sure the toys are appropriate for all children who span the age range in her room.

> …some kids are a little bigger in stature than other children, so we try to pick out things that like if it's a child with little hands or child with big hands, we try to get stuff that's in between, so they both can manipulate the toys…we have like the dress up close you

know we try to incorporate stuff that each child can be able to fit the stuff doesn't just fit one demographic like “oh this child's really small I know they can play the dress-up toys.”

Durability

Other elements of practicality that were less frequent, but still reoccurring included the durability of the toys. The toys in these classrooms need to withstand not only the rough play that they might be put through by the children but also the constant cleaning that these toys undergo. When sharing what made something a good toy to have in the classroom, Amanda said “...you know we can reuse it over and over again so definitely has that um, definitely not something they can play with and say ‘oh, I gotta throw this in the trash’”. Similarly, in response to the same question, Sarah shared “...I have to see if it's like the material is durable, just because we run through a lot of material such as books.” Both of these teachers are speaking about the possibility of something breaking or ripping and not lasting but a few uses after typical, daily use with children.

Practical to Clean or Clean Up

Another element of practicality that was mentioned was a child’s ability to clean up the toy at this age. One teacher mentioned that the wooden blocks that were an option for the last question in the toy selection, were not preferable simply because of how wooden blocks were organized in her classroom: each different shape of block was in a different container, so children who were two and turning three were not able to clean and sort this many pieces at cleanup time without a great deal of support from the teacher, Amanda:

> Those wooden blocks they're labeled by shape so putting those back on the shelf by the shape is definitely a teachable moment, but it can be very overwhelming because when they put them out, on the floor, it's like "I don't feel like putting those back"

Additionally, toys needed to be able to be cleaned and sanitized repeatedly with harsh chemicals and not fade or become damaged. In a classroom with children this young, it is still common for toys to be mouthed when a child is playing with them. Once this happened, they must be placed in a bucket to be sanitized, and this can happen several times a day or week. Elizabeth mentioned this as a consideration when deciding what would be a good toy to have in her room:

> Even quality…Because…nothing is childproof. But we want stuff that's gonna have a little bit of quality, so it will last from year to year because we do have to clean and sanitized these toys a lot more often than if it's a child at home playing with a toy. Because we do have different children here touching and you know colds, sneezing, and coughing.

Both of these examples articulate considerations that need to be made when selecting toys for a classroom that might be different from toys being selected to be in a home or other setting where only one child will be playing with the toy or toys.

Accessible Without Assistance

Similarly, Taylor expressed that toys "won't work" if they require anything of her and cannot be used by the children independently. For example, if the toys require an adult to pour something or plug in a cord, or turn it on, these toys are simply not practical to have in the classroom:

> It has to be accessible at any time, to the children, so if it's something that has to be stored away or it's so big that it doesn't fit our our daily needs in the classroom and we have to pull it out when it's…asked for it that's not gonna work… the children have to be able to play independently with it. And so, if it's something that I have to plug in the wall, for it to do anything, that's … not going to work either.

Safety

Lastly, four teachers identified that a toy must be safe for children to play with. They mainly cited that children will use materials in ways that are difficult to anticipate, so it helped to consider how hard or sharp the material might be so that if an accident happened, there would likely not be injuries as a result. Madison mentioned thinking about "if they can use it one way or the correct way… or is they going to use it like a different way". For Emily, this was her first consideration when thinking of adding new toys to the room:

> A toy that I would consider to be good for my classroom would be something that is not going to cause harm to another student meaning its not sharp, or does he have like any type of hard material to it, to the point where it could cause harm to a child

The subthemes related to the practicality of toys were not anything that related to any of the research questions of the current study, but they were obviously very important to the teachers in the sample. Toys being selected to be in a classroom would need to meet different criteria than those selected for a home environment in terms of the safety and durability, how age-appropriate they were for the wide range of children who were in the classroom in terms of skill and size, how practical they were in conjunction with the classroom organization and routines, and how well children could utilize them independently.

Results of Toy Selection Prompt

The 13th question in the interview started by showing the teachers a collection of eight toys commonly found in a classroom. The toys presented were chosen by comparing and contrasting categories of toys based on the ITERS-R (Harms et al., 2006) and the Play Pyramid (Kudriwitz & Wallace, 2010). Four of the toys shown were categorized in a way that overlapped between the two systems, such as dolls that were fantasy play on the Play Pyramid, synonymous with dramatic play on the ITERS-R. The other four toys crossed categories, such as Play-doh which was categorized as art by the ITERS-R, but sensory by the Play Pyramid. Teachers were given three prompts associated with their selection of three toys out of the eight. One prompt was to share why they selected each toy, and these justifications are included in the thematic analysis above. Here I report on the frequency of each toy being selected and what different combinations of selections were made. The toys shown included a diverse collection of dolls, colorful Legos, wooden blocks, peg puzzles, toy trucks, a beanbag toss with numbers on the side, a collection of sand and water toys, and Playdoh. All toys were chosen at least once. The most commonly selected toy was Play-Doh, which was selected by 6 of the 10 teachers. Both the beanbag toss and the peg puzzles were selected by five different teachers, followed by the sand and water toys and wooden blocks that were both selected by 4 different teachers. The trucks were chosen by 3 teachers, the dolls by two, and the Legos were only selected once.

In relevance to the combination of the toys that matched categorizations between the ITERS-R and the Play Pyramid (Kudrowitz & Wallace, 2010), no teachers selected all three toys that either crossed or did not cross these categorizations. Half of the teachers chose two toys that were a combination of categorizations (e.g. fantasy + blocks), and half chose two that were only one domain (e.g. fantasy and dramatic play).

Table 3. Toy Selections for Question 13

Name	Choice 1	Choice 2	Choice 3
Alexis	Play-doh	Dolls	Trucks
Amanda	Play-doh	Puzzles	Sand and water
Ashley	Beanbag toss	Blocks	Sand and water
Elizabeth	Play-doh	Beanbag toss	Dolls
Emily	Play-doh	Beanbag toss	Puzzles
Hannah	Puzzles	Blocks	Trucks
Madison	Beanbag toss	Blocks	Trucks
Samantha	Beanbag toss	Puzzles	Sand and water
Sarah	Play-doh	Puzzles	Legos
Taylor	Play-doh	Blocks	Sand and water

Note. Table 3 shows the three toys selected by each teacher

In addition to the subthemes mentioned above from the interviews as a whole, a subtheme that emerged specifically from this toy selection was the notion of texture and sensory play. All mentions of texture as a specific toy characteristic were during an explanation for the toys that were selected. Across 6 teachers and 9 total codes for sensory stimulation, only two occurrences were in answers other than question 13 regarding toy selection.

Summary of the Results

After generating subthemes inductively, these subthemes were grouped into two broad themes of the perceived use of the toy and the impact of the toy on the child. Subthemes related to these two broader themes were applicable to all research questions and included popular inductive subthemes such as attention and engagement or following a child's preference or interests. The first research question was further investigated with a deductive analysis which found that each teacher had their own way of defining how a toy might be different than a

learning material. Related to the second research question, the inductive analysis revealed that teachers initiate interactions typically with children who are either deeply engaged with a toy or if the teacher can provide help or support in some way. A deductive analysis showed that some design features of the toy that target specific skills were useful to teachers initiating interactions The final research question was addressed by similar subthemes such as a child's learning and a child's engagement with a toy being integral to promoting development. Additionally, the teachers highlighted the toy must be attractive to the child and be something in which they might already have an interest. The use of a toy to aid in learning and development was reported to be best when a toy could cross classroom centers, be used for multiple activities, and shown to be versatile across different skills and lessons being taught in the classroom. Lastly, a deductive analysis of what design characteristics would aid best in a child's development and learning found that teachers valued toys that were gender-neutral, culturally representative, realistic, and contained multiple levels of complexity. Lastly, an additional inductive theme of the practicality of the toys was prevalent. Teachers mentioned that toys will only be useful if they were safe, durable, age-appropriate, practical to clean or clean up, and could be accessed and used independently by the children.

The final question in the interview allowed for teachers to select toys and provide reasons for their choices. All toys were chosen at least once, with the most common choices being Play-doh, bean bag toss, and peg puzzles. The Legos were chosen only once. All teachers selected either one or two toys that crossed categorizations. The subtheme of sensory exploration appeared predominantly while discussing selections for this last prompt.

CHAPTER VI: DISCUSSION

Themes across all research questions emerged both inductively and deductively and were then grouped under the main themes of toy design, the use of the toy, and the impact of the toy on the child or the classroom. These themes are supported by the theory of affordance (Gibson, 1977) in that the design of the toy alone did not afford any behavior, but the relationship between the toy and the individual or individuals perceiving it all worked together to provide the perceived affordances. This is consistent with the theoretical model provided by Maier and Fadel (2009) in recognizing that an affordance happens between the designer, user, and the artifact–or toy–itself.

Teachers tended to not discuss toys in terms of their categories aside from their designated centers within the classroom, somewhat reflecting the requirements of the ITERS-R (Harms et al., 2006). The results of the three main themes do not fit the categories presented by the Age Determination Guidelines (Richards et al., 2020b) or the Play Pyramid (Kudrowitz & Wallace, 2010). Rather than the play activity associated with a toy, teachers discussed mainly the relationship a child might have with the toy, such as it captivating their attention for prolonged periods of time. Beyond how teachers classified toys, the results of the study addressed each research question as well as some additional themes and patterns of toy selection. Each of these sections is discussed in relation to theory and current literature.

Defining Toys and Learning Materials

In answering the differences between toys and learning materials, not surprisingly, each teacher had their own unique definition, though some were similar, such as access to the object throughout the day, or having an emotional attachment to the object. Consistent with previous work differentiating adults' perceptions of play and learning (Fisher et al., 2008), all but one

teacher had a clear definition of what they considered to be a toy, even though this was not always mutually exclusive from also being a learning material. When discussing what distinguishes toys, Madison was the only teacher who mentioned an association with play and Taylor was the only teacher to mention a specific age. Both of these elements are present in the definition of a 'child's toy' as per the Age Determination Guidelines (Richards et al., 2020a). None of the teachers mentioned a toy being something manufactured or any other aspect of consumerism, which, in combination with the concept of play, is the definition articulated by Kudrowitz and Wallace (2010). The reason for the variation in answers might be due to different socio-cultural backgrounds and upbringings of the teachers as well as their background training or curriculum used in the classroom. Framing these results within sociocultural theory would call for a consideration of what in the culture of the teachers and their centers might be valued the most (Miller, 2016). If the toys are seen as something distinctly different from learning materials by teachers, and patterns of seeing learning as superior are similar to what has been found in previous research with preservice teachers (Sherwood & Reifel, 2011), there might be different values placed on materials that are more directly associated with learning. However, the degree to which these materials are seen as inferior or superior might change based on the culture of each center and what is seen as important in the approach to teaching children (Miller, 2016). There are potential implications for toy designers as well to think not only about the play activity associated with a product but also about understanding the market they might be trying to reach, particularly with the growing area of educational toys (Kulak & Stein, 2016). Future work could examine if the market views toys made for classrooms differently than toys that are made to be consumed by families for use in a home.

The prevalence of the distinction across the sample might have also been something specific to the teachers who teach this age group of children, given that some teachers expressed a desire to be sure they were adequately preparing their children for the next classroom. Due to the small sample size and the variation of answers, it is difficult to connect each teacher's definition of a toy to certain elements of their cultural context, but it is interesting to consider for example, why some teachers include the element of emotional connection when discussing toys when this is not a characteristic commonly discussed in reference to toys as a whole. Future research could be designed to understand the reasoning behind each of these definitions and what elements of culture, upbringing, or other personal experiences might help explain them. Additional research involving direct observation might also help to understand how a teacher's definition of a toy might influence the use of those materials in the classroom.

Affording Interactions

Regarding the second research question and what characteristics of toys afford interaction, teachers primarily discussed joining interactions when a child was already engaged with a toy. This may reflect the finding from DeCortin (2015) that teachers saw toys as being useful based on adult support such as the expanding and scaffolding provided (Miller, 2016). Teachers discussed joining a child in play with a toy they already enjoy, as well as catering certain toy interactions to the child and their mood, such as selecting calming toys for children who might be upset. This finding is consistent with Scrimsher and Tudge's (2003) description of Vygotsky's idea of "obuchenie" being a teacher-learner relationship where both parties are both teaching and learning simultaneously. It should be noted, though, that the findings from the current study only reflect the teacher's perception of an interaction. However, it does seem as though the interaction between a teacher and child can be afforded by a toy, but might depend on

a child's relationship with that toy. Furthermore, the type of toy was identified as having an impact on what types of interactions might take place, exemplified by Samantha wanting a specific type of magnet, different from the ones she already had so she could ask different types of questions. This finding is consistent with the novel shape sorter task by Verdine et al. (2019) which altered how much language parents produced simply by changing the type of toy presented. No teachers mentioned instances of having to scaffold a child in uncovering or discovering potential affordances of a toy, as the theory of affordance might have suggested (Gaver, 1996). A possible explanation for this is that toys that are deemed age-appropriate might only present a challenge in terms of completion of a task rather than uncovering how a toy could be used. Additionally, the toys in the class, though some may be novel, might be familiar enough that children know how they are meant to be used.

One aim of this study was to uncover patterns in affordances of certain toys, but teachers did not discuss many design elements specifically in relation to interactions–even causing the researcher to conduct a deductive analysis to uncover any aspects of toy design that might be associated with interaction potential. This might have more to do with how teachers are seeing the control they have over what toys are in their rooms. Perhaps it is more useful for teachers to focus their attention on the ability to join a child in play and scaffold learning, rather than take notes of what types of interactions happen with each toy. Although materials have been found to afford social interactions, based on previous research (Gaver, 1996), teachers did not seem to perceive these potentials. This is not meant to say that different materials do not afford interactions, but that this affordance is something that teachers are either unaware of or not concerned with, or that the questions were simply not worded in a way to facilitate this type of

thinking. Another possibility is that the teachers elected to talk less about the toy elements because of the style of the interview and the background of the researcher.

Affordance of Development

For the third research question teachers referred to toys by each child-level skill or learning element that they might afford. One example pointed toward enhancing imagination, with some teachers saying that some children even need toys in order to engage their imaginations. The reference to child skills such as counting and number recognition is consistent with findings from Richards et al. (2020) that mothers were more likely to select a toy if it had perceived educational benefits. This could indicate that teachers and parents have somewhat similar approaches to toys that aid in development. One of the most common subthemes was a toy that has multiple uses or was open-ended. This feature is something highlighted by Trawick-Smith et al. (2014) who after studying toys for five years reflected that the highest quality of play is with toys that are open-ended. However, a feature mentioned by Trawick-Smith et al. (2014) that never emerged throughout the current study was the benefit of toys with a simple design. In fact, many teachers mentioned that they would like the toys in their classroom to have elements that children can explore and discover, which seems to highlight a preference for greater complexity. Perhaps this could be presented through the lens of having a diverse set of toys in the classroom, such that both simple and complex toys might be available. Trawick-Smith et al. (2014) also mention that realistic toys do not produce high-quality play experiences, yet the teachers sampled here specifically stated wanting more realistic-looking toys because the children prefer them and they can help in imagination play. In pretend play scenarios, children are often imitating situations they have seen acted by adults, so perhaps the desire for realistic toys is less about the quality of play from a developmentalist standpoint and more about the child

embodying cultural practices and utilizing cultural tools that most closely resemble the ones they have first observed an adult using (Miller, 2016).

Teachers focused largely on the impact element that a toy might have on a child, such as increasing their engagement and attention. It should be noted that though the teachers spoke interchangeably about engagement and attention, a child might be looking at a toy for a long time without being fully engaged and learning from it (Miller et al., 2017). This is a phenomenon that might require further investigation as to how a teacher might differentiate between something holding attention and something a child might be truly engaged with or how the two might look different to an onlooker. When designing toys, it might be useful to understand this difference if, in fact, both teachers and parents value toys when they are associated with learning outcomes (Fisher et al., 2008), rather than the toy simply stimulating a child's orientation reflexes (Miller et al., 2017). Regardless, the sociocultural theory would posit that the emphasis placed on a toy's effect on sustained attention and on child learning elements are both indicative of societal values being placed on the child via the selection and use of the toy by an adult (Miller, 2016). These values and impact-level subthemes would be important to consider as affordances beyond play activity when approaching the design of a toy.

Practicality of Toys in the Classroom

The additional themes that emerged inductively regarding the practicality of the toys directly reflect one of the main findings from Al Kurdi (2017) that came from surveying parents about what they value in toys, namely safety and durability. Interestingly, the additional themes also revealed that teachers were detecting possible negative affordances (Gibson, 1977; Maier & Fadal, 2009), which is a concept that has not yet been mentioned in relation to this study. These negative affordances are the potential for toys to be thrown or used to hit another child, and

provide theoretical support for not only why teachers might choose a toy, but why they might not choose that toy.

Some teachers mentioned that the older children in their classroom tend to become bored with the toys in their room and the teachers had to provide more challenges, supplemental to what a toy was actually affording. One explanation for this might be the small parts that are present in some toys for three-year-olds, that would not be allowed in a classroom with children under three (Richards et al., 2020b). Having children that span this toy market threshold might lead to having a limited number of toys in the room that are appropriate for the older children and also safe for the younger children.

Toy Selection

For question 13, the toy selection, a theme of sensory stimulation occurred which was mentioned only twice outside of this question. This pattern might mean that teachers are thinking differently about what is important in a toy when they are presented with concrete options than when thinking more hypothetically. Additionally, when all choices are taken together, half of the teachers picked two toys that combined an aspect of the ITERS-R and the play pyramid, and only one toy that crossed categories between the two methods of categorization. The other half of the teachers chose the opposite. This is interesting given that teachers highlighted the ability to cross centers as a strength in a potential toy. The most commonly chosen toy was the Play-doh, which fits with teachers who value open-ended toys that are adaptable to different lessons. However, Legos are also seen as open-ended, yet they were only selected once. One possible reason might be that the wooden blocks were somehow more desirable since they do not interlock. Blocks and Legos, or other interlocking toys, are categorized differently within the ITERS-R (Harms et al., 2006). This raises the question of how teachers think of different centers

as being more or less important, and how that thinking might be influenced by tools such as the ITERS-R. However, it is interesting that manipulatives were mentioned frequently as a favorite toy by the teachers, yet they did not choose the manipulative blocks over the construction blocks. Future studies could be conducted to investigate how teacher values might align with their toy selection, but with a larger sample and with quantitative methods to make clear the patterns of selection. It might also be advantageous to ask teachers directly about how different regulatory tools like the ITERS-R may be impacting toy selection and use within classroom-based settings.

Strengths, Limitations, and Future Directions

To the knowledge of the researcher, this is the first study to sample teachers of 2- and 3-year-old children and ask them about their beliefs and values when it comes to the toys in their classrooms. There is also a lack of qualitative work in studying what gives toys value or potential affordances perceived by adults. Another strength of this study is the reliability coder, who had a different racial background and research interest to the primary researcher. Not only was the reliability coder able to detect themes inductively without having similar influencing biases as the researcher, but she also shared the same racial identity as 80% of the sample, helping to ensure the integrity of the original answers.

Since the current study is the first of its kind, there exist several limitations. First, this study was based only on teachers' reports. While this serves as a contribution to the field, it does not ensure that teachers are doing what they are reporting, meaning that future work may benefit from adding observations of teachers in their classrooms. Specifically, though many teachers mentioned interactions being child-led or joining a child in their play, the current study provided no way of knowing what happened after the teacher joined the activity and if the teachers truly engaged in guided play, as recommended by Weisberg et al. (2013a). Second, the mention of

peer relationships arose a few times in the interviews but was not a dominating theme and did not relate to the direct aims of this study. Future work could separate what teachers value in toys in relation to peer social interactions instead of teacher-child interactions. Finally, the timing of these interviews in early 2022 meant that many teachers were still functioning daily with the restrictions of COVID-19. Teachers were told to try to answer without the confines of social distancing, but some discussion topics arose due to teachers longing for more typical experiences again, such as being able to share dress-up clothes and using sand or water play again.

Beyond the limitations of the study that might be addressed, the current study lays the groundwork for several future directions. First, although elements of a toy might have afforded the initiation of an interaction with a teacher, this affordance seemed to somehow be altered by the child-toy relationship. Hence, future work could examine this process quantitatively to see if the relationship between toy and interaction is somehow moderated or mediated by the relationship that the child has with the toy. Furthermore, using the theory of affordance, each user would bring with them a different goal and, therefore, a different perception of the toy's affordances, so future work could examine how these potentially differing desired outcomes might contribute to the success of the interactions.

Second, the notion of practicality in toys should be examined in relation to age-appropriateness with respect to peer relationships and also for classroom organization. For example, if the toy is age-appropriate but the classroom is organized in a complex way, this could lead to the child being unable to follow through with the classroom routines with the provided toys. For example, when Amanda mentioned that the wooden blocks in her room are separated by shape, and this sorting task that accompanied the cleanup routine, made these blocks undesirable. Additionally, as mentioned earlier, the age-appropriateness of a toy might

not take into account the developmental stages in peer relations such as children around the age of two possibly being prone to hitting or throwing a toy as part of a temper tantrum. Though the toy is safe for a child to play with individually, the development of peer relationships is a new consideration in the context of a classroom.

Third, toys seem to afford interactions with adults overall, but the nature of these interactions should be compared between parent-child interactions and teacher-child interactions. A teacher might perceive the affordance of a toy very differently than a parent, which could influence how they use the toy in a play activity with a child or a group of children. Similarly, teachers mentioned the influence of curriculum on the toys that they have in their classroom, so this is another avenue to explore how teachers of different curriculums might select or value toys differently.

Fourth, although there are differences in the ways that toys are classified across designers, marketers, and teachers, this study was not designed to fully understand the impact of these differences. It might not be that the categorization matters to the consumer at all. However, there might be an association between a toy classification and the perceived affordances of that toy. For teachers in an early childhood classroom, the question might be if a toy is in a certain category in the ITERS-R or in different centers in a room or outside, would this change the way they see that toy and its potential affordances? Future work could examine what benefits might exist from reorganizing a classroom so that a specific toy or material is not solely associated with a certain play activity, and hence, changing the perceived affordances. Similarly, for states that require a type of environment rating scale or evaluation tool, it might be beneficial to reflect on how aware teachers need to be of the requirements of these scales and how the scales themselves might be dictating where to place materials and how to use them with children.

While these regulations might be helpful in some situations, they may also be limiting the possible affordance or learning value of toys and materials.

Lastly, an unexpected theme emerged regarding play as a construct. Several teachers differentiated play activities and learning activities by the intended use of the toy and the productivity of the activity. The term 'play' was associated with children "goofing off" and using a toy in a way it is not intended. The reasoning behind this definition of play might be due to the socio-cultural background of the women who answered this way, including racial identities, socioeconomic background, or training and teaching philosophies. Future work should investigate how people of different backgrounds define play and if it is seen by them as useful or productive. These foundational understandings of play might then lead to more work examining toy use in different cultural contexts. The presence of teachers with differing ideas of play would change a child's learning environment and could impact how they themselves engage in play and in play with toys.

Conclusion

From this thematic analysis, we can conclude that these teachers of two-and-three-year-olds value toys that can be used in many different ways and toys that will hold the attention of the children in their classrooms. In addition to the skills that a certain toy might afford a child, teachers wanted toys that children would enjoy having in the classroom. The toys in a classroom can afford developmental skills but also interactions between the child and teacher, yet this interaction seems to be somehow reliant upon the child first being interested in the toy and engaging on their own before the teacher will join them. Toy designers might benefit from considering not only what play activity the toy might afford but also other elements that might enhance the attractive affordances of the toy or other elements that might enhance engagement

with the toy. It also might be important for those in the toy industry to consider not only what affordances a toy has but also how they may be perceived as open-ended. Though the current study highlights that there seems to indeed be a misalignment between how teachers are viewing toy value and how toy designers are seeing toy value with respect to the three main themes, the question still remains unresolved as to how gaps in the classification of toys from conception to consumption might impact the perceived use. However, the theory of affordance (Gibson, 1977) would indicate that defining a toy as something different from a learning material would likely alter the perceived use and, therefore, perceived affordances of the item. Much future work is needed to understand the processes behind toy affordances in the early education classroom to ensure that children who are present in these institutions are immersed in an environment that is designed to provide rich learning experiences.

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APPENDIX A: TEACHER INTERVIEW QUESTIONS

Name _____
Position Title _____
Age _____
Gender _____
Race _____
Years in this position _____
Years of experience with toddler/twos?_____
How would you classify your center? (e.g. non-profit, for-profit, or following a specific teaching style or curriculum)_____
Years working in the field _____
Highest level of education _____
Field of Study _____

I'm going to ask you some questions about toys in your classroom, and I know right now there are restrictions and concerns with safety because of COVID-19, but try to think of times before the pandemic when answering these questions.

1. What are some of your favorite toys or materials you use in your classroom? Why are they your favorites?
2. Who is responsible for selecting the toys present in your room? How are those decisions made?
3. How do you define a toy and what makes it different from other learning materials in your classroom?
4. What do you tend to look for in a toy? What gives it quality or what makes it something you would consider a 'good toy' to have in your classroom?
5. How do you select toys that can be versatile and useful to all children given the broad developmental range in your classroom?
6. What toys do you wish you had in your classroom? Why?
7. Do you prefer to interact with children with or without any toys or materials? Why?
8. How are children's play experiences with toys different than those without toys?
9. Do you have specific toys that you enjoy bringing into interactions with children? Which ones? Why that/those in particular?
10. When you see a child playing with a toy, what might be happening in that situation that would make you feel as though you should join them in playing with the toy?

11. How do you know if a child engaging with a toy is playing or learning? How might they look different?
12. What do you think it is about a toy that makes it more likely to promote learning?
13. I am going to show you a picture of eight toys. If you could choose three of these and get the same monetary amount of each, a. Which ones would you choose and why? b. What would you do with each of these three toys in the classroom? c. Is there anything else you would like to say about any of the other toys?

Images for Question 13

Construction + Blocks Wooden blocks	
Construction + Manipulatives Duplo Blocks	

Challenge + Manipulatives Simple Puzzles	
Challenge + Sensory Beanbag Toss	 
Sensory + Sand & Water Sand and Water Toys	

Sensory + Art Play-doh	
Fantasy + Dramatic Play Doll with Furniture	
Fantasy + Blocks Bulldozer Truck	

Pictures from https://www.discountschoolsupply.com/ and www.walmart.com

APPENDIX B: SCRIPTS AND PROCEDURE FOR RECRUITMENT

Procedure:

1. Initial email to directors
2. Phone call to directors.
3. Follow-up with eligible teachers to confirm interest in participating and provide a copy of the consent form to be completed before the interview.
4. Schedule Interview times via email.
5. Conduct interviews.
6. Send thank-you notes and giftcards for participating.

Initial email to directors script:
Good afternoon,
My name is Miranda Denham and I am a second-year graduate student in the M.S./Phd program in Human Development and Family Studies at UNCG. I am working on my thesis which will be centered on understanding early childcare teachers' thoughts and views on the selection and use of toys in their classrooms. I am looking to recruit a few teachers with recent experience teaching in the 2-3-year-old classroom. Their participation will consist of interview questions that I will conduct over Zoom at whatever time is convenient for them. I would love to give you a call in a few days and provide you with more information and answer any questions you might have, as well as discuss any teachers who might be interested.

Thank you and I look forward to talking with you more.

Phone call to directors:
Hi. My name is Miranda Denham. I sent you an email describing a study that I am conducting and saying that I would give you a call about my thesis project centered on understanding early childcare teachers' thoughts and views on the selection and use of toys in their classrooms. I am a second-year graduate student in the M.S./Phd program in Human Development and Family Studies and I am looking to recruit a few teachers with recent experience teaching in the 2-3-year-old classroom. Their participation will consist of interview questions that I can conduct over Zoom, at whatever time is convenient for them. Each teacher will receive a $20 gift card for their participation. Do you have teachers on staff who you think might be interested in participating?

Follow up email script to teachers:
Good afternoon,
My name is Miranda Denham and I am a second-year graduate student in the M.S./Phd program in Human Development and Family Studies at UNCG. I am looking to recruit a few teachers with experience teaching in the classroom with 2-3-year-olds for my master's thesis. I am hoping

to conduct interviews over zoom, so I can be available whenever would be most convenient for you. The study itself will consist of a set of interview questions that will be exploring your beliefs and views on what role toys play in your classroom and how you use them. The interviews should only take about 30-45 minutes. If you would be interested in participating, I am willing to answer any questions you may have. Feel free to respond to this email or we can set up a time to talk more about the study over the phone if that would make you feel more comfortable before participating. I have gone ahead and attached the consent form that will need to be filled out and sent back to me before conducting the interviews, and they can be either scanned or I can pick them up from the center. All participating teachers will receive a $20 gift card as a thank you for your time. Again, if you have any questions, please don't hesitate to contact me, and I look forward to working with you.

APPENDIX C: PARTICIPATION INFORMATION SHEET

IRB Information Sheet

Project Title: Teachers' Perspectives on Toy Value, Potential, and Utilization in the Classroom of Two-to-Three-Year-Olds

Principal Investigator: Miranda Denham

Faculty Advisor: Linda Hestenes

What is this all about?

I am asking you to participate in this research study because you are currently working as a teacher in a classroom with children ages two to three in a childcare center that has been rated with five stars from the Division of Child Development and Early Education. This research project will only take about 30-45 minutes and will involve you answering some questions in a discussion with me. Your participation in this research project is voluntary.

How will this negatively affect me?

No, other than the time you spend on this project there are no know or foreseeable risks involved with this study.

What do I get out of this research project?

You and/or society will or might learn more about how toys are used in the classroom and what toys are most valuable to have in the classroom.

Will I get paid for participating?

You will be paid $20 by an electronic gift card

What about my confidentiality?

We will do everything possible to make sure that your information is kept confidential. All information obtained in this study is strictly confidential unless disclosure is required by law. We will replace your name with a pseudonym for all data analysis and reporting. If you would like to suggest a pseudonym, you may, or one will be assigned to you at random. Your actual identity will be stored securely in a physical document which will be locked in an office filing cabinet.

Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing. Because your voice will be potentially identifiable by anyone who hears the recording, your confidentiality for things you say on the recording cannot be guaranteed although the researcher will try to limit access to the recording as described in this section.

What if I do not want to be in this research study?

You do not have to be part of this project. This project is voluntary and it is up to you to decide to participate in this research project. If you agree to participate at any time in this project you may stop participating without penalty.

What if I have questions?

You can ask Miranda Denham at (423)779-2918 or Dr. Linda Hestenes who may be reached at (336) 256-0093, or respectively, at mldenham@uncg.edu and llhesten@uncg.edu anything about the study. If you have concerns about how you have been treated in this study call the Office of Research Integrity Director at 1-855-251-2351.