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Towards a New Measure of Playfulness: The Capacity to Fully and Freely Engage in Play

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TOWARDS A NEW MEASURE OF PLAYFULNESS:

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On February 27, 2010, our collaborative team lost an integral member, Jesse Asher Howes. Jesse not only contributed significantly to the conceptual development of the PJPS, he was responsible for the on-the-ground data collection for both phases of the study. Jesse worked tirelessly to nurture playfulness in young children and their teachers and he devoted himself wholeheartedly to healing children in the wake of trauma and honoring their natural resiliency. Jesse will always be remembered and admired for beating to his own drum, lighting up a room full of children just by stepping inside, and finding ways to be playful and passionate each and every day. Though he is terribly missed, his life will serve as eternal inspiration for those of us who were fortunate enough to know him.

For my husband, Richard

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CHAPTER ONE

INTRODUCTION

Children need food and water to survive. To live, they must play.
-Steven Gross, Founder of Project Joy

Like many concepts in positive psychology, playfulness has oft been considered a trivial subject matter not worthy of empirical investigation. However, increasingly greater numbers of psychologists, educators, and pediatricians recognize that the child's engagement in play has countless cognitive, socio-emotional, and physiological benefits. Children's capacity to fully and freely engage in play, or playfulness, is therefore essential to their healthy development. Widely recognized as a universal behavior in children, play can be a child's main vehicle for the exploration of the surrounding world, attachment to others, and the development of a sense of worth and competence.

For Project Joy, a Boston-based non-profit organization, play is a key ingredient in preschool intervention. Project Joy works with preschool children exposed to chronic stressors such as poverty and high crime neighborhoods, as well as children who have endured acute trauma, such as a natural disaster. They have witnessed how both acute and chronic stressors, as well as the limited resources of a child's environment, can work to constrain, or limit, a child's playfulness. Project Joy focuses on enhancing opportunities for exuberant play and nurturing playfulness in children and their teachers.

Project Joy now aims to document empirically these observations: how a toxic environment can dampen a child's capacity to engage fully in play, as well as the ways in which play-based intervention can rejuvenate a child's playfulness.

The first step in this process is the development of a new measure of playfulness that captures the child's expression of her intrinsic desire to fully and freely engage in play. Partnering the specialized play expertise of Project Joy, the clinical expertise of Children's Trauma Recovery Foundation, and the existing academic literature on play and instrument development, this dissertation aimed to develop and test a new measure that takes a unique interdisciplinary approach to defining and capturing playfulness. Unlike existing measures that focus on a child's specialized play skills, or playfulness as a stable trait, this new measure is designed to capture a child's capacity for play at a particular moment in time, in a particular context. In contrast with previous instruments that measure the concept unidimensionally, the proposed measure assesses four distinct but related aspects of a child's playfulness: Active Engagement, Internal Control, Social Connection, and Joyfulness. This new measure is designed as a brief teacher report instrument for children between the ages of three and five.

This new measure of playfulness provides a starting point for a comprehensive research program, allowing a) Project Joy and similar groups to evaluate the efficacy of a play-based intervention, b) preschool teachers to rate their preschoolers' level of playfulness and adjust classroom practice as needed to enhance playfulness, c) researchers to evaluate the contextual effects on a child's playfulness and the link

between playfulness and key outcome variables (such as academic, socio-emotional, and cognitive outcomes). In order to maintain the scope of this dissertation project, the dissertation will comprise the first step in this process: to develop the measure, to establish its factor structure, and to assess its preliminary convergent and discriminant validity.

Due to the ubiquity of play in children's behavior and its diffuse association with most aspects of a child's development, it is easy to connect playfulness to almost every other child-focused construct. Therefore, the present study blends clinical expertise with the existing academic literature on play and playfulness to provide a foundation for the proposed measure. A review of the theoretical and empirical literature will focus heavily on play because play and playfulness are united concepts; that is, the child's playful approach distinguishes play from non-play. Furthermore, prolific amounts of research have been conducted on play, whereas comparatively little has covered the topic of playfulness.

In order to couch our working definitions in a theoretical framework, theories of play and playfulness are outlined before a new conceptualization of playfulness is presented. Key assumptions of this alternate construct of playfulness include: a) the motivation, and capacity, for play is universal in young children, b) manifestations of playfulness may differ across cultures, and c) the capacity to engage fully and freely in play can either be promoted or constrained by both internal and environmental variables. Empirical and theoretical literature relevant to each of these core assumptions will be

discussed. Because the proposed instrument targets preschool-aged children in the preschool classroom context, preschool play and relevant gender differences in play will be described. Finally, two empirically validated measures of playfulness as a personality trait (the Children's Playfulness Scale and the Test of Playfulness) will be reviewed in order to highlight the need for a measure of playfulness that focuses on the extent to which a child can express her intrinsic capacity to fully and freely engage in play. A description of the proposed measure and its four domains concludes the Introduction.

The Collaborative Process

The collaborative development of a new measure of playfulness synergizes academic and clinical perspectives on play and playfulness, and the unique on-the-ground experience of Project Joy staff who work directly with teachers and preschoolers on enhancing play and playfulness in the classroom. The development of the proposed measure of playfulness was initiated by Project Joy. Founded in 1989 by Steven Gross, MSW, Project Joy has designed, implemented and honed a play-based curriculum (powerplay©) for preschoolers aged 3 to 6. Powerplay© is a therapeutic play program that works with children in small groups on a consistent, weekly basis. Powerplay© utilizes carefully structured collaborative games, storytelling and creative movement activities to nurture playfulness and to help children, especially those facing difficult circumstances, increase their sense of self-worth, social efficacy and empowerment.

Members of our collaborative team hail from three separate (but overlapping) non-profit organizations (Project Joy, Children's Trauma Recovery Foundation, and the

Center for Trauma Psychology) that enjoy a long-standing cooperative relationship and all work under the umbrella of the Trauma Center in Boston. All three organizations focus on developing and delivering psychosocial/play-based interventions to children who have been exposed to chronic stressors (such as poverty and community violence) or acute stressors (such as terror and natural disaster). Project Joy has trained thousands of teachers across the United States and internationally on its play-based curriculum, and how to nurture playfulness in the classroom. The Children's Trauma Recovery Foundation provides a community-based trauma response program utilizing state-of-the-art, trauma-specific intervention strategies with the goal of decreasing the negative effects of maltreatment and exposure to critical incidents on children and youth. Finally, the Center of Trauma Psychology brings community-based trauma response and recovery work to both domestic and international locations who have endured war, terror, and natural disaster.

The key members of our team represent multiple disciplines and perspectives including but not limited to clinical psychology, trauma psychology, movement therapy, social work, and education. The clinical half of our team includes:

Steven Gross, M.S.W. is the Founder and Director of Project Joy, the Program Director for the Center for Trauma Psychology, and the Director of the Community Services Program at the Children's Trauma Recovery Foundation in Boston. Gross has spent his entire career working with at risk youth and is a pioneer in the field of therapeutic play and games specifically targeting the reduction of traumatic stress

responses and the nurturance of playfulness. *Robert Macy, Ph.D.* is the Founder and Executive Director of the Boston Center for Trauma Psychology, the Co-Director of a Category III National Center for Child Traumatic Stress Network site at the Trauma Center/JRI in Boston, and the Founder and Executive Director of The Children's Trauma Recovery Foundation, also in Boston. Macy is a pioneer in the field of Traumatic Incident Stress Interventions and violence prevention initiatives for children, youth, their families and their communities exposed to traumatic events including large-scale disasters, terrorist events, and political, community and armed conflict violence. Macy designs, implements and evaluates psychosocial (and often play-based) traumatic stress reduction programs (Classroom Based Intervention – CBI) in the United States, Netherlands, Norway, Palestine and Israel, Jordan, Afghanistan, Nepal, Indonesia, Sri Lanka, Sudan, Burundi, Eritrea and South Africa.

Dicki Johnson Macy, ADTR, M.Ed., LMHC is the Creative Director for the Center for Trauma Psychology and the Director of Center Studio. She is a specialist in the field of dance-movement and music therapy and has adapted a unique set of protocols based upon the art and technique of Isadora Duncan to provide non-verbal stress reduction interventions for preschool and elementary children and their mothers exposed to armed conflict and community violence (the Rainbow Dance program). *Anthony Toombs Sr., LICSW*, is the Outreach Coordinator for the Children's Trauma Recovery Foundation and a Community Counselor Advocate. He is committed to the development of networking positive community outlets for youth in Metro Boston. He is also an experienced and

talented musician who uses performing arts as a tool to peak interest of youth in efforts of fostering education importance. *Jesse Howes, M.Ed.,* is the Program Director for Project Joy and an Assistant Director of the Children's Trauma Recovery Foundation. With Project Joy, he has been working with preschoolers and training teachers in the metro-Boston area for the past eight years. *Nina Saraceno,* is the Assistant Director for Project Joy. With Project Joy and Rainbow Dance, she has run play-based groups with preschool children for the past four years. She is also trained as a professional dancer.

The academic half of the team includes Rebecca Cornelli Sanderson, MA (the author) and the support of the Loyola Department of Psychology faculty, most notably, Maryse Richards, Ph.D. Cornelli Sanderson was previously the Assistant Director of Project Joy and spent three years working closely with preschoolers and teachers and implementing the powerplay© program. Cornelli Sanderson has a MSc in Social Psychology and is a doctoral candidate in Clinical Psychology. Her research activities over the past several years have been collaborative in nature.

In order to collaboratively develop the proposed measure, the clinical and academic members of the team were involved in each step of the process including project conceptualization, measure development, and research design. The collaborative team members participated in an informal feedback loop. Academic literature on play and playfulness, existing measures of playfulness, and research methodology for measure development was presented at regular, weekly meetings. In turn, the clinical team reframed research questions, suggested modifications to the study design, and proposed

resolutions to logistical problems (related to data collection). Further, weekly or biweekly conference calls and occasional in-person group meetings sustained a dialogue in which the concept of playfulness, the four domains of the measure, and the initial item list were brainstormed and then refined. Between meetings, team members worked individually to further develop concepts and items so that group phone calls were as thought-stimulating and efficient as possible.

Interdisciplinary partnerships provide unique opportunities to develop innovative research programs (Rhoten & Parker, 2004). The integration of multiple academic and clinical perspectives can generate new approaches to long-studied topics, inventive solutions to social problems, and increase the accessibility of the research to society (Hoehner, Brennan, Brownson, Handy, & Killingsworth, 2003). Further, sharing the research and methodology knowledge of a university with a non-profit in the community may build capacity for future research and program evaluation in the organization itself (Suarez-Balcazar, Hellwig, Kouba, Redmond, Martinez, Block, et al., 2006). In this case, the development and initial testing of the proposed measure will provide Project Joy with the first steps towards evaluating the impact of powerplay© on playfulness and realizing a larger research program on the topic of playfulness.

Defining Play and Playfulness

Since antiquity, play in humans has been a topic for theoretical exploration. Once considered trivial or inconsequential, play is now being recognized by neuroscientists, biologists, and psychologists as a universally present and essential behavior type in

human life, evidenced particularly in childhood (Frost, 1998). Play is currently acknowledged as a key context of development in childhood (Ginsburg et al., 2007). The following sections will first briefly outline the last century's theoretical inquiry into play and playfulness, reviewing both classic and modern theories of play. Second, this chapter will describe the obstacles to developing standardized definitions of play, current theoretical conceptualizations of play and playfulness before presenting our working definitions of the terms. The subsequent sections should provide the reader with a broad overview of the literature on play, couching our working definitions, and eventually, our measure of playfulness, in a theoretical framework.

In the past two centuries, several scholars have put forward theories of play, its function, and form. Play theories are typically described as either classical (referring to theories before World War I) or modern (theories grounded in 20th century thought) (Mellou, 1994; Gilmore, 1971). Classical theories are focused on determining the antecedents and purpose of play irrespective of its content while modern theories (including both Piagetian and Freudian approaches) are concerned more with the form and content of play and what it reveals of the play's purpose (Gilmore, 1971; Saracho & Spodek, 1995; Stagnitti, 2004). Though quite varied in substance, the major theories of play presented in the last two centuries have jointly shaped current conceptualizations of the construct. The theories to be reviewed subsequently are those that are not only

historically important but also have direct relevance for our working definitions and measure.[1]

Classical Theories of Play

Some of the earliest theoretical statements on play conceptualized play as a way of either expending or replenishing energy. The eighteenth century German poet Friedrich von Schiller described play as "the aimless expenditure of exuberant energy" (in Saracho & Spodek, 1995). In contrast, Lazarus' (1883) relaxation theory of play suggested that play was necessary to regenerate (rather than use up) the energy lost in work. This 'recreational' view of play laid the groundwork for the juxtaposition of play and work as opposites.

A direct follower of Darwin, Karl Groos (1898), in his study of animals and humans, reasoned that play resulted from developing instincts that need to be practiced, or "exercised" in preparation for situations of necessity (*pre-exercise theory*). For example, a child who lovingly cares for her teddy may be 'exercising' an emerging parental instinct (Gilmore, 1971). One of the first to elaborate on the importance of conscious engagement in play and play's pleasure component, Groos (1901) wrote of the "satisfaction of being oneself the originator, the joy-bringing sense of being a cause." Groos' emphasis on conscious engagement and pleasure in play is reflected in the Active Engagement and Joyfulness domains of the proposed measure. Hall's *recapitulation* model theorized that play allowed children to work through primitive instincts to become

[1] Therefore, the following discussion of classical and modern theories of play is not comprehensive but rather gives a sampling of key theories from the past 150 years that are particularly germane to this paper.

healthy members of society. Linking play with instinct, the work of Groos and Hall presaged current thinking in the biological sciences that play is crucial to the development of skills needed both in childhood and adulthood, and that the need to explore and engage with the surrounding world is at some level instinctual (Bateson, 2005).

In contrast to Groos, Appleton (1910) suggested that play facilitated the growth necessary for to the function of adult instincts. Focusing on the importance of play in the growth of the ego, Lange (1901) and Claparede (1901; 1934) contended that play, and the "expressive exercising of the ego" was a key ingredient in personality development as well as the development of cognitive skills (Gilmore, 1971).

Modern Theories of Play

Theorists of the 20th century have theorized the role of play in a child's development: from a behavioral standpoint (e.g. Berlyn, Ellis), in cognitive development (e.g. Piaget), in emotional development (e.g. Freud, Erikson), and in social development (e.g. Mead, Bateson).

Play in behavior. Taking a more behavioral approach to understanding play in children, Berlyne (1969) proposed that play is stimulus-seeking and that children have a need or drive to maintain an optimal level of arousal in which they are neither overwhelmed nor bored. Berlyne's *arousal modulation theory* of play articulated that play results from a child's search for arousal, and their attempts to modulate the level of stimulation in the environment (Saracho & Spodek, 1995). According to Berlyne (1969),

preserving an aroused state requires *exploration*, whether to understand an object's properties (in order to decrease stimulation of a novel stimulus) or to seek out newly stimulating activity (in order to increase stimulation) (Saracho & Spodek, 1995). Expanding on Berlyne's work, Ellis (1973) described play as a stimulus-seeking activity in which the child is able to regulate arousal and stimulation because they are in control of the play situation (Saracho & Spodek, 1995). The hypothesized importance of control, and self regulation, is captured in the Internal Control domain of the proposed measure.

Play in cognitive development. Piaget's (1962) definition of play hinges on his theories of cognitive development, in particular, the cognitive processes of 'accommodation' v. 'assimilation' (Saracho & Spodek, 1995; Gilmore, 1971). When presented with information in the external environment, a child will *assimilate*, or integrate, the information into existing mental structures ("what can I do with this object?"). Contrarily, when a child is presented with new information for which she does not have adequate cognitive structures, she will change her existing mental structures in order to *accommodate* the new information ("what can this object do?") (Piaget, 1962). In cognitive theory, it is assumed that a child will use both accommodation and assimilation to gain knowledge and maintain equilibrium. However, assimilation is considered the predominant cognitive process in play (Piaget, 1962; 1971; Saracho & Spodek, 1995; Gilmore, 1971). Piaget (1971) wrote: "Play manifests the peculiarity of a primacy of assimilation over accommodation which permits it to transform reality in its own manner without submitting that transformation to the criterion of objective fact."

Similar to classical theories of play, such as Groos, Piaget's theory also highlighted joy (or similar positive emotion) as a 'by-product' of play (Gilmore, 1971). Piaget postulated that play behavior was characterized by joy, pleasure, or as the child aged and engaged in more symbolic play, a subtler positive countenance. For Piaget, the presence of joy is an essential criterion for play and its absence suggests that the child is engaged in a 'learning' focused activity (in which accommodation dominates) (Gilmore, 1971). Piaget's emphasis on joy in play further supports the integral nature of joyfulness in the proposed measure of playfulness.

Play in emotional development. Psychoanalytic theories, such as the *cathartic theory* of play, provide one perspective on how engagement in play can aid trauma recovery. Play allows children to purge negative emotions (the child pretends to see a scary monster under her bed without fear) and also to substitute more positive emotions in their place (the child pretends to eat lots of candy after being told that he can only have one piece) (Gilmore, 1971; Saracho & Spodek, 1995). In the psychoanalytic tradition, play is understood as a vehicle for both safe expression of feeling as well as management and transformation of negative, conflicted emotion and thought. Just as daydreaming provides the dreamer with an opportunity to repeat a past situation or play out a future scenario, fantasy play allows the child to repeat past incidents of conflict or trauma (i.e. a frightening visit to the pediatrician's office) as well as elaborating on future incidents that they would like to see happen (i.e. visiting the ice cream shop). Playing in this way gives children the opportunity to develop a sense of mastery that later helps them recover from

past trauma and face difficult real-life situations (Saracho & Spodek, 1995; Takhvar, 1988). While concurring with mainstream psychoanalytic theory on play, Erikson (1937, 1940, 1950, 1951, 1959) is well-known for emphasizing this sense of mastery and the coping effects of play (Gilmore, 1971). Erikson (1950, p. 195) wrote: "I propose the theory that the child's play is the infantile form of the human ability to deal with experience by creating model situations and to master reality by experiment and planning." Such mastery helps to relieve anxiety in the child (Erikson, 1950). It is important to note that Erikson (1950) recognizes that anxiety in play can also become overwhelming and lead to disruption of play (Gilmore, 1971).

Winnicott's (1971) theory of play states that "playing is doing," not just thinking or wishing. Winnicott (1971) defines play as existing in the space between the inner world ('the me') and the external reality ('the not-me'), which he termed *potential space.* The potential space of playing reflects the potential space between the baby and the mother-figure when the baby exists in nearly complete dependence on the caregiver. Winnicott (1971) describes the preoccupation that characterizes child's play, in which a child enters a 'near-withdrawal state' of play that is difficult to disrupt. This actively engaged play is anchored by objects and phenomena from external reality which are imbued with symbolic meaning. Winnicott (1971) also theorizes that play engages the body and that play is 'inherently exciting and precarious.' Winnicott (1971) points out that arousal during play must be pleasurable and regulated otherwise the playing is destroyed. Like Erikson (1950), anxiety in play must be contained or it too can threaten

the child's ability to play. Belonging to the potential space (originally between baby and mother-figure), playing implies trust therefore a child must have a sense of safety in order to play (Winnicott, 1971). Finally, "playing is essentially satisfying" – like Piaget, Winnicott assumed that pleasure and joy were necessary components of play. Winnicott argued that play without joy and pleasure was no longer play. Winnicott's theory encapsulates four key aspects of the proposed model of playfulness: 1) the child's preoccupation with the play activity (Active Engagement), 2) the basic need for trust in 'other' for play (Social Connection), 3) the child's ability to regulate arousal (Internal Control), and 4) the importance of pleasure in play (Joyfulness).

Play in social development. Early sociocultural theories of play assume that play provides children with the opportunity to play out social roles and learn social rules (Stagnitti, 2004). Mead (1934) proposed that play's primary function was to socialize children into their cultural world, its norms, and rules. On the other hand, Bateson's (1955) *metacommunicative* theory argued that dramatic play affords children the opportunity to distinguish make-believe from real, to communicate or signal the difference to their peers, and to try out and modify various social roles. Further, children use play to learn the system of classification that has been reified within their culture, that is what objects are and "are not" and how people communicate about those objects (Bateson, 1971). Bateson's metacommunicative theory also states that play is significantly influenced by its environment and shaped by the immediate context (Saracho & Spodek, 1995). Using play as a medium through which to explore the

environment and one's culture, children develop their socio-cultural identities primarily through play (Saracho & Spodek, 1995).

Obstacles to Developing Definitions of Play & Playfulness

Watching young children on the playground or in the classroom, onlookers tend to categorize their every action as play. Theoretically too, when attempting to parse play, work, learning, and exploration in young children, it becomes very difficult to determine when one concept begins and another ends. Seemingly frustrated with such broad and diffuse concept, Berlyne (1969) stated: "Psychology would do well to give up the category of 'play' in favor of both wider and narrower categories of behavior." The difficulty in capturing the essence of play in order to define it seems to stem from its generic nature (McCune-Nicolich & Fenson, 1984). That is, play is more easily recognized by the quality of the action, rather than the action itself. It is not surprising then, that identifying play in children is easier, and more intuitive, than actually defining it (Pellegrini & Smith, 1998b). Because of its generic nature and the difficulty of capturing it in an operational definition, play is often defined multi-dimensionally (Pellegrini & Smith, 1998b).

A secondary tension in the literature is the multi-disciplinary nature of play. Play researchers emerge from a range of disciplines from the natural and biological sciences such as ethnology and neurology to the social sciences such as psychology and anthropology (Smith & Vollstedt, 1985). Such varied backgrounds shape quite different lenses through which researchers look at play, its purpose, development, and function.

Subsequently, occasional contributions from fields beyond the scope of psychology (e.g. occupational therapy and ethnology) will be included in following sections in order to provide a more comprehensive review of play definitions.

Current Theoretical Conceptualizations of Play & Playfulness

Criteria for defining play. Current definitions of play are multi-dimensional in nature, allowing researchers to define and categorize play from various angles. As noted above, the complexity of play suggests that definition should include "a combination of features" rather than one "defining characteristic" to distinguish play from 'not play' (Smith & Vollstedt, 1985). In a seminal chapter on play, Rubin, Fein, and Vandenberg (1983) identified three paradigms for defining play: play as observable behavior, play as context, and play as disposition. Paradigms of play as behavior typically propose taxonomies of play that delineate different types of play (e.g. fantasy play, activity play, etc.). Play as context reflects the work of child psychologists who presume that children's play is defined by its context, rather than by the activity itself (e.g. a child's activity in a room of toys is play) (Rubin et al., 1983). Play as a disposition refers to the child's approach (i.e. motivation and orientation) to the play activity (Rubin et al., 1983). Because playfulness is our central focus, it is 'play as a disposition' that will be investigated in the following sections.

Krasnor and Pepler (1980) were the first to espouse a polythetic classification for play, and argued that the four following criteria: intrinsic motivation and non-literality (as defined by Rubin et al., 1983) and flexibility and positive affect merged to identify a

child's engagement in an activity as play. The greater number of criteria present, the more definitively the behavior could be identified as play (Krasnor & Pepler, 1980). Synthesizing the theoretical literature on play including Krasnor and Pepler's work (1980), Rubin et al. (1983) proposed the following dispositional characteristics of play: 1) the play activity is *intrinsically motivated* and not driven by external pressure, 2) play activity is focused on the *means versus the ends* of the activity 3) the player is *actively engaged* in the activity 4) going beyond the functional properties of an object ("what can this object do?"), the child asks *"what can I do with this object?",* 5) play behaviors are *representational* versus instrumental in nature, 6) play is *not constricted by external rules*[2].

Because the criterion "Non-literality" (Krasnor & Pepler, 1980) or "representational" play (Rubin et al., 1983) limits play to symbolic or pretend play and may exclude many types of sensorimotor, or activity play (Pellegrini & Smith, 1998b), it is not included in the proposed measure of playfulness. However, most of the other play criteria have influenced the domains of the proposed measure.

Elaborating on earlier work of Berlyne (1960), Rubin et al. (1983) and Krasnor & Pepler (1980) emphasized intrinsic motivation as a key marker of play, proposing that play is free of social demands or outside inducements. Instead, play is driven by the child. In a later empirical study of play criteria, Smith and Vollstedt (1985) summarize this play

[2] Rubin et al. (1983) describes this criterion as one that has been used to distinguish games with rules from play. Because even social pretend play can be governed by group rules and Rubin et al. (1983) as well as future play researchers discount its relevance, this criterion will not be discussed further.

criterion as follows: “The behavior is intrinsically motivated, that is, it is done for its own sake and not brought about by basic bodily needs or by external rules or social demands.” In a related concept, means versus ends orientation is reminiscent of Piaget’s conceptualization of play as ‘assimilation,’ suggesting that the player is attending more to the process of an activity versus the product of the activity (Rubin et al., 1983). For example, when children *play* under a sprinkler they are focused less on making sure to get wet and more on the various fun and creative ways they can interact with the water. Smith and Vollstedt (1985) describe it as follows: “The behavior is characterized by means rather than ends, that is, the child is more interested in the performance of the behavior itself than in the results or outcome of the behavior.” In order to delineate play from “passive states of boredom and inactivity,” the child’s active engagement is considered elemental to the definition of an activity as play (Rubin et al., 1983). The Active Engagement domain of the proposed measure similarly delineates play behavior from inactivity and incorporates both intrinsic motivation and means versus ends orientation.

When a child that is engaged in play asks: *“what can I do with this object?”* play is distinguished from exploration (Rubin et al., 1983). This criterion references the work of Ellis and also Piaget suggesting that play is guided by the individual, versus the objects or setting at hand. That is, in play, the child is familiar with the object and therefore not constricted by the properties or sanctioned uses of the object. Rubin et al. (1983) underlines the importance of internal locus of control in play because the use of the

object is determined by the wishes of the child. The implication that the child is in control of their involvement in play provides a foundation for the Internal Control domain of the proposed measure.

The criterion of positive affect espoused by Krasnor and Pepler (1980) mirrors the work of many play theorists, including but not limited to Groos, Piaget, and Winnicott, who have trumpeted positive affect, or joy, as a hallmark of play. Smith and Vollstedt (1985) defined Positive Affect as: "The behavior shows positive affect, that is, it is pleasurable and enjoyable to the child." The positive affect criterion is related to the conception of Joyfulness in the proposed measure.

Empirical evaluations of dispositional play criteria. Shifting from the theoretical to the empirical, Smith and Vollstedt (1985) investigated whether or not the criteria proposed by Krasnor and Pepler (1980) and Rubin et al. (1983) were actually used by observers to identify play. Rather than limiting the study to one type of play (e.g. fantasy play), the authors looked at the broader category of "playful behavior." Smith and Vollstedt (1985) narrowed the criteria from the two models down to the following five: Intrinsic Motivation, Positive Affect, Nonliterality, Means/Ends, and Flexibility (see above descriptions).

Seventy participants were included in the Smith and Vollstedt (1985) study: 60 inexperienced subjects (adults with no training in child observation) and 10 experienced subjects who were trained psychologists with a focus on children's play[3]. Subjects were asked to rate several different episodes of preschool children (aged 3-4) engaged in

[3] Ratings by inexperienced and experienced subjects were well correlated (r=.62).

activities and to note which criteria were met by the children's actions. Positive affect and non-linearity were the criteria most highly correlated with activities defined as "play." Means/ends and flexibility also showed significant positive correlations with "play" (particularly as rated by inexperienced subjects).

The authors also evaluated whether the presence of multiple criteria (excluding Intrinsic Motivation since it was not correlated with observations of play) implied 'judgment of play' over a single criteria. As expected, as the number of criteria present in an episode increased, the likelihood of a judgment of play also increased. Non-literality predicted play with a probability of .91, Non-literality & Positive Affect and/or Non-literality & Flexibility predicted play with a probability of .97, and Non-literality & Means/Ends had a probability of .89. Interestingly, inter-observer agreement on what is play versus what is not play was approximately 80%. Smith and Vollstedt (1985) hypothesized that lower correlations for Means/Ends and Intrinsic Motivation may not suggest that these constructs are less relevant to play but may be because there are fewer external behavioral cues from which to judge these criteria.

In order to evaluate play criteria from a different angle, Jenvey and Jenvey (2002) conducted an empirical study to compare the criteria freely generated by trained observers with the aforementioned play criteria presented in the literature. Jenvey and Jenvey (2002) asked twelve trained observers to view eight video excerpts of children's play and write why an activity was described as play and what the observers paid attention to that led them to categorize the behavior as play. The observers' coded

responses fell into the three following categories: Behavioral (positive affect, nonliterality, unrestrained/unrestricted), Motivational (practice, communication/intimacy, and cooperation), and Contextual (presence of toys and props). The motivational category of play criteria emphasized the importance of social connection, a criteria not represented by earlier work by Krasnor and Pepler (1980) and Rubin et al. (1983). For example, 'communication/intimacy' fit Howes, Unger, and Matheson's (1992) description of the collaboration inherent in pretend play. Further, the 'cooperation' category paralleled Pellegrini and Smith's (1998b) discussion of the developmental functions of play in enhancing social competence and cohesion between children. Because there were only a small number of observers (N=12), the results should be interpreted with caution. However, Jenvey and Jenvey (2002) concluded that their data generally confirmed the reliability of the categories of play derived from previous research (Krasnor & Pepler, 1980; Rubin et al., 1983; Smith & Vollstedt, 1985).

More recent research by Turnbull and Jenvey (2006) investigated the stability of these criteria across different play types and different observers, finding no significant differences between child and adult observers. However, different criteria were used to define pretend play episodes versus activity play episodes. Pretend play is the paradigmatic case of play for children. As defined by Pellegrini and Smith (1998b), pretend play is play that is fantasy-orientation with actions and communications that are non-literal in meaning and in which children may take on pretend roles (like superhero or Mummy). Activity play, on the other hand, is play that is "physically vigorous" and

involves running, chasing, rough-and-tumble, jumping, etc. (Pellegrini & Smith, 1998b). Turnbull and Jenvey's (2006) findings revealed that pretend play was more often rated on the criteria of non-literality, communication/intimacy, and physical context than activity play. The results support Pellegrini and Smith's (1998b) assertion that activity play and pretend play are two distinct subtypes of play that may require different definitional criteria.

Defining playfulness. While the literature has focused on the task of defining and categorizing play, the construct of playfulness has received much less attention. The aforementioned "orientation" and "motivational" criteria for play highlight the player's *dispositional approach* to the activity in order to distinguish play from 'not play.' It seems natural that these dispositional criteria translate into a definition of playfulness. In her book on playfulness, Lieberman (1977) conceptualized the construct as the child's approach to play, describing playfulness as the "quintessence" of play. Building on both the criteria first proposed by Rubin et al. (1983), as well as Lieberman's (1977) work, Bundy (1997) described playfulness as "the attitude of play" in her model of playfulness. Subscribing to Bundy's definition of playfulness in his contextual model of play, Cooper (2000) utilizes the term "individual play style." While the overlap is far from complete, attempts at defining playfulness seem to converge with the dispositional criteria reviewed earlier.

Playfulness as a personality trait. The definition of playfulness as a child's approach to play begs the question: state or trait? Is playfulness a stable trait that a child exhibits

across play situations? Or is playfulness more determined by context? Lieberman (1977) described playfulness as a "behavior trait" in preschoolers and a "personality trait" in adolescents and adults. If playfulness is operationalized as a trait in the two different age groups, clear differences emerge in the manifestations of playfulness. For preschoolers, Lieberman (1977) argues, playfulness is demonstrated behaviorally in the child's exuberant play, 'glint of the eye' behavior, and ease with which they move in and out of play situations and play themes. Adolescents, on the other hand, may demonstrate playfulness in their use of wit or gentle teasing. The playfulness of adolescents, Lieberman (1977) purports, is captured either by 'bubbly effervescence" and group friendliness or intellectual curiosity and enthusiasm. These personality features are conceptualized as carry-overs from the child's more pervasive playfulness in the preschool years (Lieberman, 1977). Bundy et al. (2001) similarly describes playfulness as a stable personality trait. The conceptualization of playfulness as a personality trait is in line with some of the literature on playfulness (Schwartzman, 1978; Singer, Singer, & Sherrod, 1980). Trevlas, Grammatikopoulos, Tsigillis, and Zachopoulou (2003) describe playfulness as a trait that is "an individual characteristic and its expression, relatively stable, reproducible, and recognizable."

Interestingly, recent research has undermined the assumption that a child's play style remains stable across settings. In a small pilot study, Rigby (2007) used Bundy's Test of Playfulness (ToP) to examine the stability of playfulness across three environmental settings (home, community, and school). Children aged 4 to 8 with

cerebral palsy (CP) were observed to be most playful at home and least playful at school (Rigby, 2007). These preliminary findings suggest that playful behaviors may be influenced significantly by the environment. Based on the impact that child abuse can have on a child's play, Cooper (2000) proposed a contextual model of play that outlines how an abusive environment can undo a child's playfulness. Whether playfulness is a stable trait or a behavioral state that is impacted by the environment has not yet been researched adequately (Muys, Rodger, & Bundy, 2006). However, the effects of context on play frequency, intensity, quality, and type are well-documented (see section on Contextual Effects on Playfulness). Therefore it is possible that within playfulness there are two inter-related constructs: 1) a capacity for play whose expression is context-dependent, and 2) playfulness as a stable personality trait. Two theories emphasizing playfulness as a stable personality trait (Lieberman, 1977; and Bundy, 1997) and Cooper's (2000) more contextually-dependent conceptualization of playfulness are presented below. Cooper's (2000) transactional model of play and the environment lays the groundwork for the proposed measure of playfulness.

Lieberman's playfulness theory. For Lieberman (1977), playfulness is a personality trait that describes "how a child plays" and is "operationally defined as spontaneity in physical, social, and cognitive functioning, manifest joy, and sense of humor." *Physical spontaneity* refers to the frequency with which the child engages in spontaneous physical movement (such as running, skipping, and jumping). This physical activity is marked by exuberance, rhythmic movement, and motor coordination. *Social*

spontaneity captures the frequency with which the child is able to flexibly interact with the 'surrounding group structure' such that he can move in and out of group play and integrate himself in the activity. *Cognitive spontaneity* refers to the degree to which the child displays imaginative capacity, particularly in dramatic play, as well as how the child is able to shape and alter his expressive play as the context changes. *Manifest joy* is described as the frequency and intensity with which the child freely expresses joy in play, often demonstrated through smiling, laughter, or even singing during play. *Sense of humor* is described as the ability to find happenings pertaining to self as funny, as well as the child's propensity for rhyming and gentle teasing, or "glint-in-the-eye" behavior (Lieberman, 1977).[4] Lieberman proposed that her concept of playfulness overlapped significantly with both creativity and imagination.

In a study of 93 kindergarten children, Lieberman (1965) found support for all five playfulness traits as well as a unitary dimension (labeled playfulness). Factor analysis indicated a single centroid factor with loadings from the five traits ranging from 0.52 to 0.70 (Lieberman, 1965). Findings suggesting playfulness as a personality trait can be measured as a unitary dimension were also generally supported in a study of 106 preschool and kindergarten children assessed by their teachers (Barnett & Kleiber, 1982) and a similar sample of 79 kindergarten children (Singer & Rummo, 1973). It is important to note that all three studies employed less than rigorous methodology with a white middle-class sample.

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[4] Lieberman's Playfulness Scale (1977) and Barnett's (1991) revision of Lieberman's earlier work (Children's Playfulness Scale) will be reviewed in the section "Towards a Measure of Playfulness."

Bundy's model of playfulness. Within the field of occupational therapy, models of play and playfulness have been developed for the purpose of clinical assessment of play (Stagnitti, 2004). Building on Lieberman's theory of playfulness and the related work of Barnett (1991), as well as Bateson's (1955) *metacommunicative* theory of play, Bundy's model (1997) defined play as a transactional relationship between the individual and the environment in which playfulness is the individual's contribution. Bundy (1997) effectively translates the dispositional criteria described earlier into a measure of playfulness characterized by intrinsic motivation (the child's motivation to play unaltered by compliance to external expectations), internal control (the child's ability to determine or direct the 'who,' 'what,' and 'where' of the play action), the freedom to suspend reality (the child's ability to bring non-literal, fantasy elements into play), and framing (the child's ability to communicate and interpret social cues).[5] Incorporating two domains from Rubin et al. (1983), intrinsic motivation in this model is assumed to be "inherently enjoyable" and process versus product-oriented. The Intrinsic Motivation dimension is derived directly from earlier suggestions that the concept was necessary to the definition of play (Rubin et al., 1983; Smith & Vollstedt, 1985). Bundy (1997) blends concepts of flexibility (Krasnor & Pepler, 1980; Smith & Vollstedt, 1985) and spontaneity (Lieberman, 1977) in the construction of the dimension of Internal Control. Similarly, the Freedom to Suspend Reality is derived from the child's capacity for non-literal or 'representational' play (Rubin et al., 1983; Smith & Vollstedt, 1985). Bundy,

[5] Bundy's (2001) Test of Playfulness will be discussed in detail in the section "Towards a Measure of Playfulness."

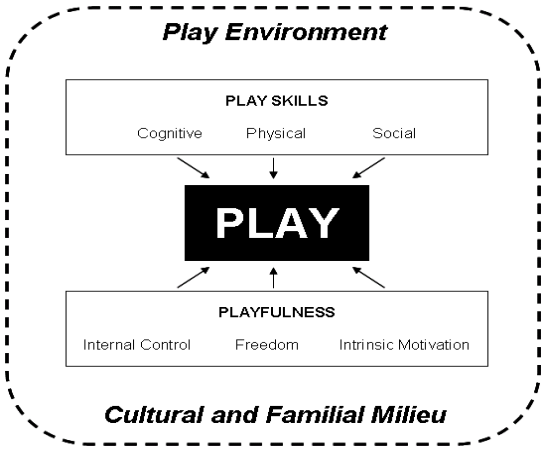
Nelson, Metzger, & Bingaman, (2001) state: "Play is a transaction between the child and the environment that is intrinsically motivated, internally controlled, and not bound by objective reality… Play is considered to be a continuum of behaviors that are more or less playful depending on the degree to which the criteria are present."

Cooper's contextual model of play & playfulness. Building on Bundy's (1997) theory of play and playfulness, Cooper's (2000) model of children's play incorporates the play environment, the child's play skills, the child's cultural and familial milieu, and the child's playfulness (defined as attitude towards play/play preferences). Expanding on Bundy's (1997) conceptualization of play as a transaction between the individual and the environment, Cooper (2000) writes: "The individual child brings his or her developmental abilities and play skills, along with his or her personal play preferences and playfulness, to the play transaction, while the child's immediate environment (physical setting, available play materials and social elements) either encourages or limits his or her play activities. The surrounding adult cultural values and beliefs, and the child's experience of care or parenting, further influence how the play transaction develops."

Cooper's (2000) model is clearly distinct from earlier theories of playfulness in two ways: 1) the delineation between playfulness and developmental abilities/play skills and 2) the importance of context to the child's playfulness and play skills. Cooper (2000) argues that an individual child brings both her developmental capacities (cognitive, physical, and social play skills) and her personal play style (or playfulness) to play

actions (see Figure 1). *Cognitive skills* describe play organization and mastery of activities, *physical skills* include motor coordination and mastery of movement, and *social skills* include social knowledge and communication skills. The play environment is defined as the physical (such as available play space, variety of play materials, etc.) and the social elements (e.g. presence of other children/adults) present in a play context. The physical and social setting mold and shape a child's play skills (Cooper, 2000). In this model, the cultural and familial milieu that work to shape playfulness include ecological factors, like socioeconomic status, community support, and ethnic identity, as well as family processes and parent-child attachment. Cooper's (2000) transactional model of playfulness and its emphasis on contextual effects is a foundation for our conceptualization of play and playfulness.

Figure 1. *Cooper's (2000) Conceptual Model of Play and Playfulness.*



Our Working Definitions of Play & Playfulness

Our process. With a unique blend of academic perspective, informed by the existing literature, and 'on-the-ground' expertise of play interventionists, we developed a

new working definition of playfulness for the purpose of our study. Our team started the conceptual process with a review of the literature (presented above). An annotated bibliography of key references and theories was shared with the team so that all members held the same knowledge of the play literature. The play literature was used to stimulate discussion of core concepts and raise fundamental questions regarding our developing definition of playfulness. Regular phone and in-person brainstorming meetings were held to organically develop the construct of playfulness and its dimensions. Brainstorming began with the generation of playful-related words based on clinical observation. Several domains were first proposed, before being collapsed into four key domains. Team members brought several years of direct daily experience playing with preschoolers, training preschool teachers to play, and to nurture playfulness, in their preschoolers, and being playful in their own lives. Team members also drew from years of experience watching how exposure to either chronic stressors or acute trauma could dramatically affect a child's capacity for playfulness.

Our working definition of play. Converging with Rubin et al. (1983) and Smith & Vollstedt (1985), we work from within the paradigm of play as disposition: that play is distinguished from other activities by the child's dispositional approach to the activity, rather than the activity itself. This is best illustrated with an example: Imagine a child bouncing a ball. Under our working definition, the child bouncing the ball is not necessarily playing unless the child's approach to the activity is playful in nature. Like Krasnor & Pepler (1980), and later Bundy (2000), play is conceptualized as a continuum

of activity that can be more or less 'playful' depending on the number of dispositional criteria that have been met. We concur with Cooper (2000) that the form and shape and the frequency and intensity of play is shaped by both a child's engagement in the activity (playfulness) and the child's play skills. We further agree that the child's playfulness and skill level are influenced directly by both the immediate play environment and the surrounding cultural and familial milieu (Cooper, 2000).

We propose that *play is the result of an internal drive to connect with and engage with the surrounding world*. Universal across juveniles in mammalian species, playing appears to be a basic human behavior in childhood, alongside sleeping and eating (Pellegrini & Bjorklund, 2004). We further argue that play is essential to a child's cognitive, socio-emotional, and physical development and their ability to thrive in the world.

Our working definition of playfulness. In contrast with Lieberman (1977) and Bundy et al. (2001), we do not conceptualize playfulness as a personality trait. Instead, our construct of playfulness is the expression of a child's natural propensity for play. *Playfulness is the expression of the child's drive to freely and pleasurably engage with, connect with, and explore the surrounding world.* The capacity within each child to fully and freely engage in play is represented in the following four domains: *Active Engagement, Internal Control, Social Connection, and Joyfulness.* The domains represent different ways in which playfulness is manifest: behavior, cognition, socio-cultural connection, and affect. The four domains will be described in detail in the section

"Towards a Measure of Playfulness." This working definition is founded on the following theoretical assumptions:

1. *Universal drive for playfulness*: We propose that playfulness is the articulation of each individual's inherent capacity to fully and freely engage in play. Capturing the mammalian drive to play in early stages of development, playfulness is the expression of a universal motivation and capacity for play in young children.
2. *Cross-cultural manifestations of playfulness*: Though we assume universality of the drive or motivation for play (i.e. to be playful), our model attempts to recognize that manifestations of playfulness may differ across contexts and across cultures.
3. *Contextual effects on playfulness*: Playfulness is the expression of a capacity that can either be nurtured and encouraged or constrained and limited by both internal and *environmental* variables (at the family-, community-, or institutional-level). Context can affect play at both the macro-level (i.e. conditions of poverty or war) and the micro-level (i.e. the specific play setting and play props).

These assumptions are essential to our understanding of playfulness but are not to be tested in the current study. Based on our new conceptualization of playfulness, we propose a brief teacher-report measure of playfulness to be used with boys and girls in the preschool age range. Therefore, developmental and gender differences must be accounted for.

1. Playfulness and development: The structures of play change with as well as mirror development. Play appears to be an activity that is universal (and adaptive) for

children until adolescence (Bjorklund & Pellegrini, 2000). The working definition of playfulness is designed for and will specifically target the preschool age group. However, the measure will need to account for potential developmental shifts between the ages of three and five.

2. *Gender differences*: Robust gender differences exist regarding frequency of play types, thematic content of play, and quality of play. Because playfulness may also be gendered in its presentation, the measure should account for potential gender differences.

To demonstrate the way in which the child's playful approach classifies the activity as play, or not play, we will revisit the example of the child and the ball. If the child is fully and freely engaged in bouncing the ball, then the activity might be classified as play. However, if the coach orders the child to practice bouncing the ball 100 times in a row as part of basketball practice and the child is not interested in such an activity, the activity is no longer play. On the other hand, behaviors in 'non-play' settings can be transformed into play because of the child's playful approach. For example, a child eating a Graham cracker at the table could be playing with her food if she imbued the action with playful intent (eating the cracker into the shape of a circle and wearing it as an eye-patch). Our working definition is intended to be broad enough to include all types of play within the typical taxonomies of play (e.g. both activity and pretend play) while still making clear distinctions between activities that are and are not play.

Finally, not all play is created equal regarding its healthful benefits. However, when children are actively engaged, internally controlled, socially connected, and joyful in an activity, it is assumed that they are then engaging in *transformative* play. Transformative play can be described as play that supports learning, practicing cognitive, social, and emotional skills, having fun, and building self-esteem.

The Importance of Play & Playfulness

Article 31 of the United Nations High Commission for Human Rights of the Child reads: "States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts." The inherent right to play is recognized by the UN Charter because of its fundamental importance for healthy child development. From infancy, children use play as a medium to engage with and learn about their world. This medium has key neurological, cognitive, socio-emotional, and physiological benefits for children's health. The National Association for the Education of Young Children (1997) maintains: "Play is an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their development." Because play serves as a key facilitator in the healthy development of children, it is essential that a child's motivation and capacity to fully engage in play is nourished. The development of the proposed measure of playfulness would allow for investigations of the relationship between the extent to which the child fully engages in play (i.e. level of engagement) and positive

academic, social, and emotional outcomes. The following section documents several strong links between play and healthy child development.

Play as learning: Neurological & cognitive benefits. The ubiquitous nature of play in mammals suggests that play serves an important role in the healthy brain development of children (Bjorklund & Pellegrini, 2000; Frost, 1998). Play allows children to practice skills that build cognitive competence (Piaget, 1962). Because of the way that children use play to explore and master their surroundings, play and learning are rather united concepts (Ginsburg, Committee on Communications, & Committee on Psychosocial Aspects of Child and Family Health, 2007).

Play in young children has been linked to the development of multiple cognitive competencies. Gross motor activity, which composes a major proportion of preschooler play, is associated with the development of sensory-motor integration (Burdette, & Whitaker, 2005; Williams, 1986). Further, Burdette & Whitaker (2005) propose that executive functioning (a competency that includes attention, planning, decision-making, and organization) is enhanced through a child's problem-solving in play. In an evaluation of a preschool curriculum that promotes executive functioning through play tasks (e.g., making "play plans" and engaging in socio-dramatic play), significant increases in executive functioning were revealed (Diamond, Barnett, Thomas, & Munro 2007).

Creativity, which encompasses high levels of rational and emotive thinking, as well as an increased plane of awareness, is cultivated through regular engagement in pretend play (Saracho, 2002). The use of imagination and fantasy in pretend play allows

children to expand their perceived roles (i.e. playing “Mummy” or Superman) and engage in make-believe scenarios, therefore promoting creative abilities. Playfulness has also been associated with creativity and divergent thinking (see Boyer, 1997; Barnett & Kleiber, 1982; and Trevlas et al. 2003).

Not only is a child’s cognitive development influenced by their own engagement in playful behavior, but also by parent-child play. The nurturing and responsive relationships that are strengthened through parent-child play foster optimal cognitive development, particularly in oral language and literacy (Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). Parents’ sensitive and cognitively stimulating play with their 2 and 3 year old children predicted higher scores on both linguistic and cognitive development tests over multiple time points (Tamis-LeMonda et al., 2004).

Similar to the importance of parent-child play, play with peers predicts early academic success. Along with movement and coordination, peer play interaction is considered a general classroom competency linked to successful engagement in classroom learning activities (McWayne, Fantuzzo, & McDermott, 2004). Peer play interaction has been positively correlated with higher receptive vocabulary skills, early literacy and numeracy outcomes and greater engagement in learning activities (Fantuzzo, Sekino, & Cohen, 2004). Hampton and Fantuzzo (2003) found that kindergarten children’s peer play interaction (as rated by their teachers) predicted their academic performance in first grade, particularly in subjects of language, social studies, art, music, health, and gym. Because of the salient link between play and academic success,

Coolahan, Mendez, Fantuzzo, & McDermott (2000) recommend the facilitation of healthy play with peers as a key component of successful learning environments for young children.

Socio-emotional benefits of play. It is not surprising that positive peer play is closely associated with social and emotional competence. Bredekamp & Copple (1997) stated that "during the preschool period, play represents the primary developmental context in which social competence with peers is manifest." Unstructured play time with peers and parents provides crucial opportunities to hone social skills (Burdette & Whitaker., 2005). In fact, the American Academy of Pediatrics argues that engagement in play is necessary for the practice of group skills such as sharing, decision-making, conflict resolution, and assertiveness (Ginsburg et al., 2007). Play offers constant occasion for cooperation, negotiation, and problem-solving whether during the elaboration of a complex pretend play scenario or simply in deciding whose turn is next (Burdette & Whitaker, 2005; Frost, 1998). Subsequently, engagement in social peer play is directly and positively linked to social competence and negatively correlated with impulsive and disruptive behaviors (Howes & Matheson, 1992). Children who have more cooperative and positive play interactions are viewed as more sociable by their teachers and well liked by their peers (Ladd & Price, 1987).

In the Fantuzzo et al. (2004) examination of interactive peer play amongst low income urban children, play interaction was highly positively correlated with social engagement. Conversely, play disruption has been associated with aggressive and

oppositional behavior (Fantuzzo, Bulotsky, McDermott, Mosca, & Lutz, 2003; Coolahan et al., 2000; Fantuzzo, et al., 2001; Lutz, Fantuzzo, & McDermott, 2002). Similarly, disconnection in play has been associated with withdrawn problem behaviors (and low energy) (Fantuzzo, Grim, Mordell, McDermott, Miller, & Coolahan, 2003). Because play is the medium through which young children communicate with their peers, it follows that their engagement in play will have direct consequences for their connection with peers.

Pretend play and physical play (specifically, rough and tumble play) are two forms of play that have been linked to emotional competence both theoretically and empirically (Lindsey & Colwell, 2003). In theory, pretend play provides children with the opportunity to symbolically recreate and control highly stimulating (and potentially overwhelming) emotional events (Bretherton, 1989; Howes & Matheson, 1992). In play, children are able to negotiate the rules, circumstances, and the direction of play, all the while learning emotional regulatory and modulation skills (Lindsey & Colwell, 2003). Associations between pretend play with older siblings and adults and children's emotion recognition, understanding and regulation abilities have been suggested in the literature (Howe, Petrakos, & Rinaldi, 1998; Youngblade & Dunn, 1995). This link has been empirically documented for adult-child play amongst both genders (Gayler & Evans, 2001) and peer play, particularly amongst girls (Lindsey & Colwell, 2003). Peer play interaction also predicts more competent emotional-regulatory skills in the classroom

(such as taking turns, sharing) and is negatively correlated with disruptive behavior and showing temper (Fantuzzo et al., 2004).

Rough and tumble play refers to physically vigorous and playfully aggressive behaviors that include wrestling, tumbling, and chasing. Though there is little empirical evidence, it has been hypothesized that rough and tumble play with parents and with peers helps children to learn about emotional expression, practice perspective-taking, and regulate emotions (Pellegrini & Smith, 1998a). Burdette & Whitaker (2005) posits that research on the benefits of physical activity for stress relief and prevention of anxiety and depression can be extended to gross motor play in preschoolers. In fact, in a qualitative study of physical activity in preschoolers, parents described the 'immediate' benefits of gross motor play for their preschoolers as "improvements in their children's mood and mental health" (Harvey-Berino, Geller, Dorwaldt, Flynn & Walfield, 2001).

Associations between play and socio-emotional competence in the literature are typically correlations between frequency, quality, and intensity of a particular play type *and* ratings on a measure(s) of social/emotional skills. However, one recent study conducted a randomized controlled trial of the impact of a play-based intervention for children between 9 and 24 months (Walker, Chang, Powell, Simonoff, & Grantham-McGregor, 2007). In the longitudinal follow-up study, Walker et al. (2007) introduced a play-based intervention for low-income mothers in Jamaica. For 24 months, mothers were taught play techniques, given simple homemade toys, and encouraged to engage in play activities with their toddlers. Participating mothers were assigned to the play-based

intervention, dietary supplementation, or both and all participants received weekly visits for two years. At the sixteen year follow-up of 103 adolescents, participants who received the play-based intervention at an early age reported significantly less anxiety, fewer symptoms of depression, and higher levels of self esteem than participants who did not receive the intervention. Their parents also rated them as having fewer attention problems.[6] Such promising findings highlight the importance of shaping environments that nourish a child's ability to fully engage in play.

Physiological benefits of play. The increasing prevalence of childhood obesity in the U.S. and other developed countries and the simultaneous decrease in free play opportunities may not be a coincidence. The obesity literature often focuses on the value of physical activity and exercise to maintaining fitness in children. However, Burdette & Whitaker (2005) recommends a shift of focus from physical activity to gross-motor play because the two are essentially equivalent in young children. Children are physically active when they engage in play, organized sports, chores, and exercise activities (Goran, Reynolds, & Lindquist, 1999). Because preschoolers are typically too young for organized sports and exercise, as well as household chores, play composes the majority of their physical activity. In fact, preschool children's highest physical activity levels occur when they are in engaged in play outdoors (Kiesges, Eck, Hanson, Haddock, & Kiesges, 1990). For these reasons, the American Academy of Pediatrics recognizes the

[6] Differences in levels of depression, self-esteem, and parent-reported attention were significant at the $p<.05$ level. Differences in levels of anxiety between groups was significant at the $p<.01$ level.

facilitation of unstructured play as a central strategy in the prevention of obesity (Ginsburg et al., 2007).

Play & Playfulness: Universality, Culture, Context

Returning to the core assumptions of the proposed definition of playfulness, this section briefly reviews the empirical research on biological and neurological substrates of play, cross-cultural examinations of play, and the potentially profound effects of context (from the macro- to the micro-level) on a child's ability to fully engage in play. An understanding of these key themes is essential to the development of a measure of playfulness that is founded on the following assumptions: a) children have an innate drive to play, b) manifestations of play (such as thematic content and play type) are shaped by culture, and c) this construct of playfulness is context-dependent.

Universality of play in children: Biological function & neural substrates. Play's ubiquitous presence in young mammals suggests that play and playfulness are universal phenomena that are central to a child's development (Bjorklund & Pellegrini, 2000). Play is considered an ontogenetic adaptation, a neurobehavioral process that serves an adaptive function for the animal in development, and is no longer necessary once the developmental stage is achieved (Bjorklund & Pellegrini, 2000). In ethological studies of juvenile animals, play is easily distinguished from other behaviors because of its apparent purposeless, the signaling of 'playful' intent, and its exaggerated form (Bateson, 2005). Pellegrini & Smith (1998a) argue that play serves immediate functions in the context of childhood such as enhancing a sense of mastery or practicing social communication

(particularly in rough and tumble play). Bateson (2005) proposes that play has multiple biological functions for young animals, including but not limited to: a) the sculpting of the nervous system and musculature, b) learning to effectively cope with social competition, c) practicing the art of catching prey, and d) developing identity with and connection to a social group or local culture. Mammalian play behaviors are likely to be crucial to the development of neural structures, as well as to laying the groundwork for later learning (Haight & Black, 2001).

Play enhances the nervous system through a cyclical neurological process, in which engagement in play programs neural structures, supporting increasingly complex play that in turn strengthens the neural pathways (Bateson, 2005, Frost, 1998). Recent findings in the areas of play behavior in rats and mirror neurons may point towards neuroanatomical and neurochemical substrates of play. In his extensive research on the psychobiological substrates of basic human affective structures (such as joy, fear, rage, lust, etc.), Panksepp (1998) has defined play as a neurochemically regulated psycho-behavioral process. Through numerous rat studies (e.g. Ikemoto & Panksepp, 1992; Panksepp, Siviy, & Normansell, 1984, & Panksepp, Normansell, Cox, & Siviy, 1994), Panksepp has closely studied the social play behavior of rats in a tightly-controlled experimental design. Findings suggest that socially-deprived rats have an *increased* appetite for play once isolation has ended, implying the existence of a basic drive for play (Ikemoto & Panksepp, 1992). Panksepp (1998) writes that there are "instinctual circuits for… joyful playfulness in the ancient subcortical reaches of our old mammalian brains."

Neurotrophins are complex peptide molecules that orchestrate the development of neural systems (Panksepp, 1998). Panksepp (1998) hypothesizes that "zestful play" (e.g. high-energy physical play) may have particularly potent effects on the activation of neurotrophins, thereby aiding in the development of those neural systems. Panksepp (1998) argues that play in young mammals may be one of the processes through which neural connections are strengthened to achieve 'normal cerebral maturation.' Research on mirror neurons also supports the existence of a neural substrate for play. Mirror neurons fire both when an individual is taking action and when he is perceiving action of another living creature- suggesting that the same area of the brain that controls action, may also be involved in perception (Lepage & Theoret, 2006). The presence of a mirror neuron system in the immature human brain may explain why imitation is so prevalent in the play of infants (Meltzoff & Moore, 1977). Infants are often keen to imitate the actions of adults or older children like brushing hair, "talking" on the phone, or playing "patty-cake." Evidence of biological function and neurological underpinnings emphasizes the natural drive that young children have for play behavior. Therefore, our measure of playfulness will be designed to capture key elements of how children express this *motivation* for play.

Cross-cultural variation: The importance of cultural sensitivity. Of course, the discussion of a universal drive for play should not overlook the importance of culture and context on the manifestations of play behavior and play content. If it is determined that the drive for play is universal across mammalian species, it is critical to delineate aspects

of play are culturally-determined from those that are universal across cultures. As current research strives to develop culturally sensitive theories of development, play is reframed as a "culturally-mediated activity that may take different forms in different settings" (Haight, Wang, Fung, Williams, & Mintz, 1999).

Anthropological study of children's play in traditional hunter-gatherer (Gosso, Otta, Marais, Ribeiro, & Bussab, 2005) and agrarian societies (Bock, 2005) reveal broad similarities between traditional and industrialized communities. Children from the Pakarana hunter-gatherer tribe in Brazil play almost constantly during the first seven years of life, and engage in the same types of play identified by developmental psychologists studying children from industrialized countries (e.g. rough and tumble play, exercise play, exercise play with objects, object play, construction play, social contingency play, fantasy play, and games with rules). Further, children's disposition towards play in this foraging community fit the criteria for play identified by Smith and Vollstedt (1985) of nonliterality, positive affect, flexibility, and attention to means versus ends (Gosso et al., 2005). Focal observation of a multi-ethnic agrarian community in the Okavongo Delta of Botswana also demonstrated multiple commonalities between children in traditional versus modern societies (Bock, 2005).

Unique to humans, pretend play also appears to be ubiquitous across traditional and modern societies. Piagetian theory predicted that pretend play in young children would be analogous cross-culturally. Two key universals have emerged in cross-cultural research to date. First, pretend play seems to emerge around 12 months of age (Haight &

Black, 2001). Second, early pretend play appears to be primarily social in nature (Haight & Black, 2001). However, recent research has suggested notable cross-cultural variation (Haight & Black, 2001). Ethnographic and naturalistic observation research has revealed significant differences in the social function, content, and process of pretend play between a child and a caregiver (Haight et al., 1999).

In a cross-cultural comparison of pretend play, Haight et al. (1999) investigated the universal and culturally-variable dimensions of pretend play in preschoolers (2.5 to 4 years) from Irish-American (in the US) and Chinese (in Taiwan) families. Multiple aspects of pretend play were highlighted for their universal and culturally-variable dimensions: physical ecology (e.g. available objects), interpersonal context (e.g. available people), social interaction (e.g. patterns of adult-child interaction), social function (e.g. purpose of pretend play), and content (e.g. daily living versus fantasy). In addition to the two universals mentioned above, Haight et al. (1999) documented that both Irish American (IA) and Chinese children incorporated objects into their play. It is hypothesized that objects may serve as 'tangible reference points' for imaginative play, an anchor from which the child's fantasy can range.

However, because preschoolers often revolve their pretend play around toys, the content of their play may be influenced by the toys available or by culturally-determined themes (Farver & Shin, 1997). Differences in thematic content shaped Anglo-American children and Korean children's play very differently: Korean-American children's play was more likely to include everyday tasks and family life whereas Anglo-American play

was dominated by themes of fantasy and danger (Farver & Shin, 1997). In Haight's et al. (1999) study, the centrality of objects (in particular, toys) varied between IA and Chinese preschoolers. In IA families where toys were abundant, pretend play usually revolved around those toys whereas in Chinese families where space and toys were limited, the children often used knowledge of social routines (for example) to 'propel' their play (Haight et al., 1999).

The social nature of pretend play was also culturally variable. Pretend play partners varied based on the availability of partners, a contextual effect that may be influenced by cultural norms (such as size of family, childcare patterns, etc.). The initiation of pretend play also varied across the two cultures, with IA children more often acting as the initiators of pretend play than their Chinese counterparts. Also, play that is initiated by the caregiver may be culturally-themed. For example, Chinese caregivers were more likely to use pretend play to "practice proper conduct" with the child (Haight et al., 1999). Data from Haight et al. (1999) and Farver & Shin (1997) suggest that cultural variations in play may be the result of differences in meaning-making and context. In order to capture a child's underlying motivation and capacity for play, a measure of playfulness should account for cultural variations in meaning-making and context that may affect children's play. Further, our proposed measure should be sensitive to differences in definitions and the meanings ascribed to particular types of play across cultures.

Contextual effects on play. Cross-cultural research on play highlights the importance of contextual effects on play from a macro-level, such as early play environment, to a micro-level, such as the play props available. Sameroff's (2010) transactional theory of development underscores the importance of understanding the influence of context in relation to a child's development. Therefore, a more detailed examination of contextual effects on playfulness adds to the discussion of the genesis of playfulness and the extent to which it is modulated by the child's environment. The effects of socioeconomic status, acute trauma (i.e. natural disaster) and chronic stressors (i.e. community violence), and the quality of childcare on the play of children will be emphasized.

Early research on the effects of socioeconomic status on play provided controversial results. Smilansky's (1968) comparative study of pretend play of children from middle income versus lower income families suggested that children from "culturally deprived" backgrounds demonstrated fantasy play that was "impoverished" regarding its thematic content, its duration, and its complexity (in Smith, 2005). Follow-up studies on the effects of social class generally validated Smilansky's findings. In another investigation, low SES preschoolers engaged in more solitary-functional and parallel-functional play while their middle SES peers were more likely to engage in associative, cooperative, and constructive play (Rubin, Maioni, & Hornung, 1976). However, the study had a very small N (23 middle SES and16 low SES preschoolers) and did not account for several confounding variables. McLoyd (1982) criticized the studies

of social class effects on play for their methodological problems. Smith (2005) later wrote: "It is likely that global statements about social class effects on play are unwarranted."

Differences found between income groups more likely to correspond with differences in material resources and material familiarity than actual differences between socioeconomic groupings (Smith, 2005). For example, the SES differences in Rubin et al. (1976) may be explained by the lower SES preschoolers' decreased access to toys and other stimuli that are included in the preschool space. Children living in poverty are less likely to have adequate home learning resources such as age-appropriate books and toys (Duncan, Brooks-Gunn, & Klebanov, 1994). Therefore low SES children may engage in more functional play with the toys that are novel in contrast with children who are familiar with the toys (and their function) and are therefore more interested in using them as props in pretend play. Children who live in poverty are also more likely to live in crowded homes (Children's Defense Fund, 1995) that do not have designated, safe, play spaces (Evans, 2004). Families living in poverty have less open outdoor space and nature available in their neighborhoods (Evans, 2004). Further, outdoor spaces in some low-income neighborhoods are perceived as unsafe due to high levels of community violence and crime.

Discrepancies in the play of children from different SES groupings may also be related to their increased exposure to both chronic and discrete stressors. McLoyd (1998) argues that these stressors partly mediate the link between socioeconomic disadvantage

and socio-emotional functioning for poor children. That is, low SES children experience a greater number of adverse life events and conditions of living than their middle-income peers (Sterling, Cowen, Weissberg, Lotyczewski, & Boike, 1985). Acute traumas such as natural disaster or chronic stressors such as a living in a war zone or a high violence community can have profound effects on a child's play. The experience of trauma can significantly impact the child's mental health in two key ways: the modulation of arousal and negative cognition (Garbarino, 2001). Traumatized children can often be hyper-aroused, that is they cannot manage their physiological response to stress and they remain in a constant state of alert even when the danger is long gone (Macy, Barry, & Noam, 2003). Experience of trauma can undo many core assumptions that children hold and rely on, such as "I (or my parents) are in control," "I am safe," "my parents won't let bad things happen to me," and "I am worthy" (Macy et al., 2003). A child's representations of the world (termed "social maps" by Garbarino (1995)) can be reshaped by the experience of trauma, replacing the above mentioned assumptions with negative cognitions such as "My parents are powerless to keep me safe" and "I am only safe at home" (Garbarino, 2001).

It seems that safety (perceived or objective) is a prerequisite for play (Cooper, 2000). Across species, young animals do not engage in play if they are stressed, afraid, sick, or hungry or if basic needs are not met (Bateson, 2005). Recent empirical work with rats underlines the impact of fear on playfulness. Juvenile rats briefly exposed to cat odor showed a substantial reduction in play behavior (an almost complete abolition of play)

for up to seven days following the exposure (Siviy, Harrison, & McGregor, 2006). These findings suggest that playful behavior is suppressed not only when 'danger' is near, but also following exposure to frightening stimuli.

In children, hyperarousal can result in hypervigiliant behavior, irritability, and repetitive play behaviors that reenact the most disturbing aspects of the traumatic experience (Macy et al., 2003). Attending to every environmental cue that could signal danger, children who are exposed to community violence are less likely to "explore their environment and play freely" (Osofsky, 1995). Preschoolers suffering from post-traumatic stress disorder (PTSD) often exhibit variations on usual play, such as play that is compulsively repetitive, play that re-enacts part of the trauma, or play that is constricted (Scheeringa, Zeanah, Drell, & Larrieu, 1995). In one study, children with a history of trauma demonstrated higher levels of avoidant play behavior, negative affect during play as well as increased frequency of play disruptions and intense play than children with no known history of trauma (Findling, Bratton, & Henson, 2006).

Post-traumatic play fails to relieve anxiety in the child and is typically less creative or elaborate than usual play. Captured play, or play that is restricted to repetitive patterns, is the traumatized child's attempt to create meaning and find solutions when assumptions about safety and hope for the future have been nullified (Garbarino & Manley, 1996). It appears that trauma can dissemble a child's ability to self-regulate while also unraveling the child's core sense of safety, worth, and competence.

Childcare has also been hypothesized to impact the play and playfulness of preschoolers. Howes & Stewart (1987) examined the effects of family and childcare on children's play and found that childcare and family separately and together predicted competent play in preschoolers. Results indicated that families that were nurturing and had access to social support were more likely to enroll their child in higher-quality childcare and parents who were restrictive in their parenting and stressed were more likely to enroll their child in lower-quality childcare and were more likely to change childcare arrangements. Both nurturing and supported families and higher quality childcare predicted higher levels of competent play in children. Higher frequency of changes in the childcare arrangement, lower-quality childcare, and restrictive and stressed families predicted lower levels of competent play (Howes & Stewart, 1987). Comparing 'minimally-adequate' child-care centers with a 'model child-care center', Howes and Matheson (1992) found that children in the model center demonstrated an earlier emergence and greater frequency of complex play than children in the minimally-adequate centers. The minimally-adequate childcare centers provided less stringent adult/child ratios and minimally-adequate ratings on appropriate caregiving and developmentally appropriate activities. Interestingly, Howes and Matheson (1992) hypothesize that the academic nature and the minimal quality of the childcare centers may have restricted the development of social pretend play in participating preschoolers. A measure that is designed to be sensitive to contextual effects on playfulness can

uncover ways in which a child's environment works to either constrict her capacity to fully engage in play or cultivate it.

Preschool Play: Developmental Considerations & Gender Differences

Designing a measure of playfulness for the preschool age range requires an understanding of two key factors of preschool play: the changing structures of play across development and gender differences. This section will provide a description of preschool play in boys and girls by briefly reviewing theories of play development, key categories of play in preschoolers, and salient gender differences in frequency, content, and complexity of preschool play. The proposed measure of playfulness will strive to develop items that are relevant across the developmental age span (i.e. 3 to 5 years old) and both genders.

Theories of play development. In the 20th century, multiple models of play development have been proposed in order to describe both the sequence and form of children's play across childhood. Piaget's theory of cognitive development proposed three basic, overlapping stages of play: sensorimotor, symbolic, and games with rules (Piaget, 1962). When toddlers begin to use objects to represent other things (such as substituting a shoe for a telephone), they have entered the symbolic play stage. According to Piaget, symbolic play dominates children's play from 15 months to approximately 6 years at which point 'games with rules' (play that is guided by set of publicly agreed upon rules) overtake symbolic play (Piaget, 1962). Expanding upon Piaget's theory of play development, Smilansky (1968) proposed a hierarchal model that positions from

first to last: functional play (simple physical movements or actions with objects), constructive play (constructing things with objects – such as building a tower), dramatic play (playing out pretend roles in a game), and games with rules (playing a game that is guided by a publicly accepted set of rules). A developmental model of social play assumes that play becomes increasingly social with age, starting with solitary play and moving towards parallel play (minimal level of social engagement in which two children play *near* each other), associative play (social participation in which the children are involved in different activities but are sharing toys and communicating back and forth), and cooperative play (social participation in which the children's activities are coordinated and oriented towards a common goal) (Parten, 1932).

Piaget (1962), Smilanky (1968), and Parten's (1932) models suggested that children's play matures in a relatively fixed sequence over time, with later forms of play replacing earlier forms of play. However, recent research has found that while engagement in different forms of play emerges at different ages in the expected sequence, the forms of play coexist through the preschool years (Howes & Matheson, 1992). Though these models are still useful as taxonomies of play behavior in the preschool age group, their hierarchical structure has generally been discounted (Smith, 2005). Activity play (i.e. exercise play and rough-and-tumble play) is another form of play that is important to consider (Pellegrini & Perlmutter, 1989). All common preschool play types will be described in the following section.

Preschool play. As noted earlier, the emergence of 'higher' forms of social play, such as cooperative social pretend play, does not preclude the continued existence of earlier forms of play, such as solitary constructive play (Howes & Matheson, 1992). In fact, the frequency with which children engaged in Parten's social play types (onlooker behavior, solitary play, parallel play, and cooperative play) did not change between preschool (3-4 YOA) and kindergarten (5-6 YOA) (Rubin et al., 1976; Rubin, Watson, & Jambor, 1978). Furthermore, children were just as often engaged in non-social activity as they were engaged in cooperative play at both the preschool and kindergarten level (Rubin et al., 1976; Rubin et al., 1978). In order to provide a comprehensive picture of preschool play, the following section will outline the major preschool play types emphasized in the literature: symbolic play, functional object play, constructive object play, exercise play, and rough and tumble play. It is important to note, however, that there is significant overlap between play types (Pellegrini & Bjorklund, 2004). For example, a child who is playing at building a block tower may be engaged in constructive object play. Yet if he is pretending that the block tower is a castle from which he'll reign over his kingdom, he adds a symbolic element to the play.

Symbolic play. Symbolic play is often referred to as a pretend play, make-believe play, and fantasy play. Until recently, the play literature was dominated by descriptions of symbolic play over all other forms of play (Pellegrini & Bjorklund, 2004). Symbolic play represents the paradigmatic case of play in childhood and therefore many definitions or models of play have been derived from it. Fantasy play is ubiquitous in human

children (Pellegrini & Bjorklund, 1999). Vygotsky's (1978) theory of sociodramatic play captures the way in which imagination and play intersect for young children. Imaginative play in young children often requires a 'pivot' (such as an object, theme, or setting) from which the child can launch his fantastical narrative sequence. Symbolic play generally involves acting out everyday and imaginary roles (like Mummy or Superman). Playing house, acting out fairy tales or "Star Wars," or having a tea party are all forms of make-believe play. Symbolic play requires an "as if" or not-real orientation to play in which objects, actions, and verbalizations are imbued with non-literal meanings (Pellegrini & Smith, 1998b). Fantasy play can be solitary, in a dyad, or in a group. Preschoolers appear to first engage in cooperative social pretend play between 30 and 36 months (Howes, 1989) and complex social pretend play between 42 and 48 months (Garvey, 1977). The frequency of fantasy play seems to peak in kindergarten (Fein, 1981).

Functional and constructive object play. Functional play involves the simple repetitive manipulations of objects, such as moving a toy car back and forth or rolling a ball (Piaget, 1962). Piaget (1962) referred to this type of play as "practice play" inferring that children use these actions to practice skills and learn about the world. In fact, it has been suggested that children engage in this type of object manipulation for the joy of exercising a behavior that has already been mastered (Rubin et al., 1983). As defined by Piaget (1962) and Smilansky (1968), constructive play involves the manipulation of objects for the construction or creation of something. Constructive play includes building with blocks, drawing, making a snowman, and sculpting Play-Dough, as examples.

Constructive play is often a central activity in the preschool classroom, which is typically outfitted with an abundance of construction materials (Rubin et al., 1983).

Pellegrini & Bjorklund (2004) emphasize that measuring object play is confounded by the inclusion of simple object manipulation with actual 'play' and the difficulty of discerning the two. A conservative estimate suggests that "object play" comprises 10 to 15% of all preschool behavior (Pellegrini, Horvat, & Huberty, 1998). However, in the preschool classroom, constructive play ranges from 40% of all preschooler activity at 3.5 years of age to 51% of all activity at four through six years of age (Rubin et al., 1976).

Exercise play. Exercise play is gross motor movement in a play context (Pellegrini & Smith, 1998b). Examples of such gross locomotion include running, jumping, skipping, climbing, and chasing and are characterized by physical vigor (Pellegrini & Smith, 1998a). Exercise play is distinguished from pure exercise as activity that brings pleasure via a sense of recent or ongoing mastery (McCune, 1998). For example, a child who is being taught to throw a baseball may find the lesson to be boring and remain unengaged. However, as the child becomes more competent at throwing the ball and experiences a sense of mastery (or potential mastery), her affect and engagement changes, thereby shifting the activity into play. Exercise play can occur alone or with peers and/or parents (Pellegrini & Smith, 1998a). Starting in the toddler period, exercise play seems to peak in the preschool period around 4 or 5 YOA and decline during the school-aged years (Eaton & Yu, 1989).

Rough and tumble play. Often classified under exercise play, rough and tumble play (R&T) alludes to physically vigorous behaviors that seem aggressive except that they are actually playful (Pellegrini & Smith, 1998a). In fact, a critical distinction between R&T and aggression is that children (and young mammals in general) rarely get hurt during R&T (DiPietro, 1981). Rough and tumble play includes wrestling, hitting, chasing, and tumbling (as examples). Young mammals signal that "this is play" using facial and vocal cues, their muscle tone and movements remain relaxed, and their roles are easily reversed (Fry, 2005). Human children's R&T is often marked by laughter and exaggerated movement (Fry, 2005). McCune (1998) argues that R&T synthesizes exercise play with social pretense because the aggressive play has an 'as if' quality to it and can be thematic in nature (Pellegrini & Smith, 1998b). Rough and tumble play is widespread across mammalian species and appears to be universal cross-culturally (Fry, 2005).

Though the frequency of R&T play peaks in late childhood, R&T typically emerges in the preschool period (Pellegrini & Smith, 1998a). Earlier cases of R&T are often initiated by parents, typically fathers (Carson, Burks, & Parke, 1993).). Recent research suggests that when fathers remain in control of R&T play episodes (i.e. directing the play, acting as the "aggressor"), children develop self-regulatory skills and show reduced physical aggression with peers (Flanders, Leo, Paquette, Pihl, & Seguin, 2009). However, when fathers play a less dominant role in R&T (allowing the child to initiate and direct the play), children show increased physical aggression (Flanders et al., 2009).

Gender differences in preschool play. It is evident across the research literature that there are pervasive gender differences in preschool play (and social behavior) in Western societies. Sex differences emerge regarding 1) frequency – the amount of time girls and boys engage in certain play types, 2) thematic content, and 3) the quality or complexity of the play (Rubin et al., 1983).

In line with cultural stereotypes, boys are more likely to engage in gross motor and functional play whereas girls have been to found to be more likely to engage in sedentary constructive play activities (Rubin et al., 1976; Pellegrini & Bjorklund, 2004). Higher levels of physical activity play are typically observed in boys and may be due to factors related to hormonal influences and differences in rates of physical maturation between boys and girls (Pellegrini & Smith, 1998a; Eaton & Yu, 1989). One subtype of activity play, rough and tumble (R&T), reveals sex differences across both human and mammalian juveniles with males engaging in and initiating more R&T than females (DiPietro, 1981; Pellegrini & Smith, 1998a). In a study of 203 preschoolers, Fabes, Martin & Hanish (2003) found that boys engaged in same-sex play that was more 'active-forceful' than girls. It has been hypothesized that boys' tendency towards R&T and girls' avoidance of that type of physical contact may be a causal factor in the sex segregation of the preschool play space (Pellegrini & Smith,1998a). Though it is a commonly held assumption that girls more frequently exhibit fantasy play, the findings are inconsistent (Pellegrini & Bjorklund, 2004; Smith, 2005; Rubin et al., 1973). Higher frequency of fantasy play amongst girls is often linked to girls' more advanced linguistic capabilities

in the preschool age range (Maccoby & Jacklin, 1977). It is noteworthy that girls typically use more verbal strategies and boys typically use more physical strategies to access resources and affect others (Fabes et al., 2003)

Again reflecting common stereotypes, the thematic content of children's play is rather different across boys and girls. Interestingly, Fabes et al. (2003) found that preschool boys were more likely to engage in sex-stereotyped play than preschool girls. In pretend play episodes, boys are more likely to use superheroes and related fantastical themes (i.e. pirates on a ship) to structure their play whereas girls are more likely to use domesticated scenarios (i.e. making tea) for their play (McLoyd, 1980; Pellegrini & Bjorklund, 2004). Differences in thematic content may be linked to toy preferences (potentially developed as parents purchase sex-appropriate toys) because toys and related props often anchor the children's fantasy scenarios (Rubin et al., 1983).

Though some research has suggested that girls' fantasy play is more complex than that of boys (i.e. longer play episodes, more sophisticated themes, and more abstraction), the findings are inconsistent (McLoyd, 1980; Pellegrini, 1985). Interestingly, Pellegrini & Perlmutter (1989) found that the use of male-preferred versus female-preferred play props and the sex of the playmate influence the sophistication and complexity of play. When children were using the preferred props of their own sex (i.e. boys playing with male-preferred toys), they engaged in more complex play (Pellegrini & Perlmutter, 1989). It is notable that when playing in mixed-sex dyads there was no longer a main effect of gender on social-cognitive dimensions of play (Pellegrini & Perlmutter, 1989).

Little research has directly investigated the effects of gender on a child's disposition to play (e.g. intrinsic motivation, internal control, freedom to suspend reality, etc.). One exception is a study of 607 Greek kindergarten children that examined gender differences in playfulness, as measured by the Children's Playfulness Scale (CPS). Boys scored significantly higher than girls on the following dimensions: physical spontaneity, manifest joy, and sense of humor (Zachopoulou, Trevlas, & Tsikriki, 2004). Of course, it is important to note that gender differences in play and playfulness in general may vary significantly depending on cultural norms and expectations for boys versus girls. Therefore, in order to apply to both boys and girls in the preschool age range, the proposed measure of playfulness is intended to capture the child's underlying motivation to fully engage in play with items that can apply across all types of play (i.e. constructive object play, exercise, symbolic play, etc.) and play content.

Towards a New Measure of Playfulness

A review of current measures of playfulness. Several measures of play exist to measure children's play. Play has often been used as a context for assessment, and instruments have been developed to measure various aspects of children's play such as play skills (Knox Preschool Play Scale; Knox, 1997), play experiences (Play History; Takata, 1974), peer interactive play (Peen Interactive Peer Play Scale (PIPPS); Fantuzzo & Hampton, 2000), and play types (Peer Play Scale; Howes, 1989) to name a few. During play, children are often within Vygotsky's zone of proximal development, a point at which they will exhibit their highest levels of competence (Pellegrini, 2001).

Therefore, many current measures of play use play as a proxy for development (e.g. the Peer Interactive Play Scale; Fantuzzo & Hampton, 2000). Valid and reliable measures of playfulness are harder to find. Two measures with established psychometric properties and published results are the Children's Playfulness Scale (CPS) (Barnett, 1990; 1991) and the Test of Playfulness (ToP) (Bundy, 2000).

As discussed earlier, the CPS and the ToP are founded on the construction of playfulness as a stable personality trait and therefore do not recognize the potential impact of the environment on playfulness. The CPS and the ToP both include several items devoted to higher-order processes like creativity and humor, as well as specialized skill-based play behaviors (such as "sharing"). Finally, the CPS and the ToP both measure playfulness as a unidimensional construct. In contrast, the newly proposed measure moves beyond earlier constructs of playfulness to capture a child's expression of her inherent motivation and capacity for play. This alternate measure of playfulness will 1) be designed specifically for use in the preschool classroom by preschool teachers, 2) delineate the motivation and capacity for engagement in play from specialized play skills, and 3) propose the multidimensional assessment of a child's playfulness.

Children's Playfulness Scale (CPS). Based on her theory, Lieberman (1977) developed a measure of children's playfulness to capture her five factor model: cognitive, social, and physical spontaneity, sense of humor, and manifest joy (See the section on Defining Play and Playfulness for definitions of each domain). The instrument consists of 10 questions on playfulness as well as a question on intelligence and physical

attractiveness (referred to as ringer questions). Key criticisms of the measure included the inconsistency of the response format, the linking of multiple behaviors in each item, and the mediating influence of the two 'ringer questions' (Barnett & Kleiber, 1982). Lieberman's theory suggested great overlap between playfulness, creativity, and imagination. Another criticism of the instrument is that Lieberman (1977) did not develop conceptual boundaries between playfulness, intelligence, and divergent-thinking abilities (Trevlas et al., 2003).

Barnett (1990) revised Lieberman's playfulness measure in an attempt to address some of the above concerns. The five-factor structure was retained but the two questions in each domain were replaced with five distinct items. The final instrument, the Children's Playfulness Scale (CPS) (Barnett, 1991) consists of 23 items rated on a 5-point Likert scale. The CPS has been validated for use by teachers in preschool classrooms. Barnett (1991) attempted to demonstrate psychometric properties of the measure through analyses of inter-rater reliability, internal reliability, temporal consistency, construct validity of the measure across contexts, and convergent validity. Though the factor structure of the original CPS was investigated using exploratory factor analysis, confirmatory factor analysis (CFA) has now been used to assess the underlying structure of the Greek version of the CPS (Trevlas et al., 2003). The model confirmed that the five variables loaded onto one factor (playfulness) and did not support a five-factor model of playfulness.

In summary, the CPS attempts to capture a child's "playful personality" rather than the expression of the child's drive to play (Barnett, 1990; 1991). The inclusion of higher-order processes such as divergent-thinking, humor, and creativity suggest that the measure is best used to assess whether a child is a 'playful kind of kid' versus whether a child can fully and freely engage in play. Its conceptualization of playfulness is capturing an inter-related but different construct of playfulness than the one that we propose. However, the proposed construct of playfulness may be a prerequisite for playfulness as a personality trait, as it is assumed that children who are described as "playful" kids (funny, creative, and joyful), will also have the capacity to fully and freely engage in play. On the other hand, children whose playful capacity is unfettered may not be particularly creative or humorous. Because the CPS is appropriate for use in the preschool classroom and has demonstrated strong psychometric properties, it will employed as a comparison measure for the assessment of convergent and discriminant validity.

Test of Playfulness (ToP). Designed for use in the assessment of playfulness by occupational therapists, Test of Playfulness (ToP) was developed to capture three elements of play: intrinsic motivation, freedom to suspend reality, and internal control. These three criteria for play were derived from Smith and Vollstedt (1985), though Bundy incorporated items representing manifest joy and humor from the Children's Playfulness Scale (CPS) and the work of Lieberman (1977). Bundy (1997) also included a fourth aspect of play called "framing." Extracted from Bateson's (1955) metacommunicative theory of play, framing refers to the child's ability to give and

accurately read social cues regarding play. These four components load onto a central factor of playfulness for a unidimensional measure.

The ToP is a 24-item instrument in which each item is scored on three 4-point Likert scales: extent, intensity, and skill. Across several studies, with children ranging in age from 15 months to 18 years, the ToP has demonstrated inter-rater reliability and preliminary construct validity with diverse samples through Rasch analysis (e. g. Bundy et al., 2001; and Leipold & Bundy, 2000). In a comparison study of the ToP and the CPS with children with autism (N=24), strong positive correlations between the therapist-rated ToP and the therapist-rated CPS suggest that the two measures may assess a similar phenomenon (Muys, Rodger, & Bundy, 2006). However, because the ToP is an observational assessment designed for use by trained occupational therapists, it will not be used as a comparison measure in this study.

Defining the gap: The need for a new measure of playfulness. Though there are currently two measures of playfulness that have published psychometric properties indicating that they are reliable and valid for certain populations, the trait-based conceptualization of playfulness limits the measures' utility. In order to evaluate the effect of acute or chronic trauma, or the impact of natural disaster or war, a playfulness measure must be designed with the potential impact of the environment in mind. Further, a measure of playfulness as a stable trait theoretically excludes the possibility of evaluating the efficacy of a play intervention or high quality childcare (as examples) on the nurturance and promotion of children's playfulness. Therefore the proposed measure

is theoretically founded in the assumption that playfulness is the expression of a child's inherent capacity for play that can be either limited or supported by the environment. Further, the current measure is designed specifically for one context: use as a teacher-report measure in the preschool classroom. With input from preschool teachers and experts in early childhood education, items reflect play behavior that is commonly observed in the preschool classroom.

Secondly, the inclusion of specialized play skills (such as telling jokes, sharing toys with peers, and saying "sorry") introduces culturally-mediated processes into the definition of playfulness. In order to capture the universal drive to engage in play, a measure of playfulness must delineate this motivation and capacity for play from learned play skills. A measure of playfulness that includes specific play skills may not translate well cross-culturally. While conceptual differences are sometimes difficult to parse, distinction between playfulness and play skills should manifest at the item-level.

Third, the previously developed measures of playfulness assess playfulness unidimensionally. In contrast with a one-factor model, a multidimensional measure of playfulness allows for a more fine-tuned assessment of a child's capacity to fully and freely engage in play. A multi-factored measure can provide an evaluation of play strengths and weaknesses. For example, a child may be actively engaged in play quite frequently but does not appear socially connected. Alternatively, a child may appear to be socially connected but has minimal internal control.

To our knowledge, the proposed measure of playfulness is the first to blend academic and clinical expertise in the development and conceptualization of a playfulness measure. In a collaborative loop, 'on-the-ground' clinical expertise and a review of the academic literature on play and playfulness have been merged to produce a new conceptualization and measure of playfulness. Expert clinicians with decades of experience developing and implementing play-interventions go beyond the academic literature to provide invaluable insight into the playfulness of children. This collaboration is interdisciplinary in nature, bringing together perspectives from the social work, clinical psychology, trauma psychology, and movement therapy disciplines.

This new measure of playfulness could be used by: a) *interventionists*, like Project Joy, to evaluate the effects of intervention on the playfulness of the targeted children, b) *preschool teachers*, to assess levels of playfulness in their classrooms and structure their classrooms around the nurturance of playfulness, c) *researchers*, to investigate key questions regarding contextual effects (such as quality of childcare) on a child's playfulness, as well as to investigate associations between the child's level of engagement in play and positive outcomes, such as socio-emotional competence and school readiness. Therefore, we propose a new teacher-report measure of playfulness for preschool children that attempts to assess playfulness as the expression of a child's natural motivation to play.

The Project Joy Playfulness Scale: A Four Factor Model. For the purpose of this measure, our working definition of playfulness is: *the expression of the child's drive to*

freely and pleasurably engage with, connect with, and explore the surrounding world. The measure proposes a four-factor model in order to capture behavioral, cognitive, socio-cultural, and affective expressions of playfulness in the preschool child. The four domains, *Active Engagement, Internal Control, Joyfulness* and *Social Connection*, will be defined in detail in the following section. *Active Engagement* shares significant overlap with the intrinsic motivation dimension of the ToP (Bundy, 1997) as they are similarly influenced by the academic literature on dispositional play criteria laid out by Rubin et al. (1983) and later Smith & Vollstedt (1985). Likewise, the domain of *Internal Control* overlaps with the dimension of internal control in the ToP (Bundy, 1997). The *Joyfulness* domain converges somewhat with Lieberman's (1977) concept of manifest joy (represented in the manifest joy dimension of the CPS). The *Social Connection* domain shares some commonality with referents to the social aspects of play in both the CPS and the ToP (social spontaneity and framing, respectively).

It's important to emphasize this measure of a child's playfulness is not intended to be used to judge one play episode but to judge the child's capacity for play in the preschool setting over the course of two weeks.

Active Engagement. Active engagement refers to the *child's enthusiastic and complete immersion in an activity*. Active engagement captures a child's enthusiastic focus and overt presence in a given play activity. Intrinsically motivated, the child's participation is characterized by complete immersion in the activity and an integrated

focus between mind and body. When a child is actively engaged in play, they are thoroughly "in the present moment."

Active engagement is reminiscent of Winnicott's (1971) description of the 'near-withdrawal state' or preoccupation of play, in which the child is immersed in the activity and difficult to disrupt. Active engagement in play is related somewhat to Csikczentmihalyi's (1990) concept of flow, a deep, effortless involvement in an activity in which the person loses sense of self and time. Optimal 'flow' experiences occur when an individual engages in an activity that provides a level of challenge that matches her ability, rather than overwhelms it (Csikczentmihalyi, 1990). When the activity presents no challenge to the person's skills, the result is boredom (Csikczentmihalyi, 1990).

It is assumed that to be completely engaged, the child must be intrinsically motivated to participate in the given activity. Referring back to Rubin et al. (1983), and Smith & Vollstedt (1985), intrinsic motivation suggests that the child's engagement in the play activity is personally driven and not shaped by external rules or demands. Further, the activity is "done for its own sake" and the child is process-oriented (rather than product-oriented) in her approach. Active engagement in an activity is therefore intrinsically motivated, process-oriented, and focused behavior.

Describing the impact of child abuse and neglect on intrinsic motivation in play, Cooper (2000) points to lack of energy in play, aimlessness, and hypervigilance. Children who have suffered abuse struggle to maintain a sustained interest in play or toys (Gaensbauer et al., 1980; Findling et al., 2006). The hypervigilant child is on a constant

state of alert, scanning the environment for any source of potential thereat (Macy, Barry, & Noam, 2003). That child is therefore less able to focus her attention on play and exploring the surrounding world (Carrey, Butter, Persinger & Bialik, 1995).

Within the preschool age range, it is not expected that children will actively engage in a particular play activity for long periods of time. However, children of this age are often in the 'present moment' and enthusiastically focused (even if only briefly). It is also important to note that structured, adult-directed group play activities can also be intrinsically motivated. That is, the child's level of involvement or participation in a structured activity can still be driven by internal desires, rather than by the social demands of the group setting.

Internal Control. Internal control refers to *the child's sense of safety, balance, and competence that allows her to comfortably engage with the surrounding world***.** Internal control refers to both the internal processes underlying playfulness and their natural sequelae in play. Grounded in a sense of internal safety, the child holds the belief that he can influence his environment, a sense that he has freedom in the degree to which he engages in that environment, and the perception that he can meet challenges and experience success in that environment. These cognitive beliefs allow the child to modulate his physiological arousal levels, to approach new and/or challenging situations with confidence, and to take risks.

This domain's label automatically conjures the theory of 'internal locus of control.' Internal versus external locus of control describes the preschool child's

generalized expectation as to whether or not he has power to control what happens to him. Internal control has been described as the perception of positive and/or negative events as being a consequence of one's own action and thereby under personal control (Mischel, Zeiss, & Zeiss, 1974). Bundy's model of playfulness (1997) also focuses specifically on the issue of personal control, defining internal control as the child's ability to determine the 'who,' 'what', and 'where' of the play action.

However, the proposed measure expands this definition of control to include a sense of efficacy; the child not only believes that he has some control regarding the structure of play but that he also believes that he can experience success in play. These cognitive beliefs are evidenced in the child's action to seek out challenges, to try new things and take appropriate risks, and persevere in the face of defeat (Bandura, 1993). Bandura (1993) ties perceived self-efficacy, the personal belief that one can produce change with effort, with perceived controllability, the belief in the extent to which one can modify the environment. For the child who has continually faced threat and terror, basic cognitive assumptions necessary to play, such as "I am in control," and "I am worthy" have been undone (Macy et al., 2003). Perceived controllability, Bandura (1993) argues, significantly influences a child's self-regulatory capacity as the child who has no perceived control in an environment will struggle to self-regulate. A child's ability to self-regulate develops as "control" in infancy, when the young child merges an awareness of the social demands of a situation with their own capacity to "initiate, maintain, and cease behavior" (Kochanska, Coy, & Murray, 2001). Self-regulation in the preschool age

range is described as "flexibility of control processes that meet changing situational demands" (Kochanska et al., 2001).

Therefore our definition of internal control also emphasizes the child's capacity for maintaining internal balance (or self regulation). A child can only fully and freely engage in play if they are able to control their level of participation in the play so that it does not overwhelm them. Referring back to Winnicott (1971) and Erikson (1950), arousal and anxiety in play must be kept in check in order to allow the play to continue. When the environment lacks perceived controllability, traumatized children may repeatedly re-enact an event related to the trauma in their play to the extent that the play becomes overwhelmingly anxiety-provoking (Garbarino, Dubrow, Kostelny, & Pardo, 1992). Without this sense of control, safety, and predictability in the world, a child's play can become disorganized, impulsive, and poorly regulated (Cooper, 2000).

It is important to note that play activities are often not under the complete control of the child (i.e. in structured adult-led play). However, in the same way that a child's engagement in adult-directed activities can have a level of intrinsic motivation, the child can still maintain a level of control in an adult-directed play activity. The child usually has the capacity to control the level, intensity, or way in which she participates in the play activity, regardless of its structure.

Active Engagement and Internal Control represent cognitive-behavioral aspects of playfulness. Though they represent two separate dimensions of playfulness, the child's perceived sense of efficacy and ability to self-regulate can easily be linked to her desire

to fully engage in a play activity. Further, engagement and focus in play can enhance a child's sense of mastery. For example, a study of internal and external control in preschool children revealed that expectancies for internal control of positive events (Internal Control) were positively related to a child's engagement at tasks believed to end in a positive outcome (Active Engagement) (Mischel, Zeiss, & Zeiss, 1974).

Joyfulness. Joyfulness refers to *the child's sense of love, fulfillment, and hope that is expressed with displays of pleasure and exuberance.* Joyfulness refers to a child's deeply rooted sense of love, fulfillment, and hope. Manifesting in an observable state of exuberance and pleasure, joyfulness is characterized by the child's uninhibited abandon in the play activity. Joyfulness is observed through the energetic synchronization of body, face, and voice.

Joyfulness is in part derived from the dispositional criteria of positive affect from Krasnor & Pepler (1980) and Smith & Vollstedt (1985). Positive affect in play is the child's enjoyment and pleasure in the activity. Several theorists over the last century (from Groos to Winnicott) stated that positive affect is a necessary component of play. Notably, observations of positive affect in children reliably led to observers categorizing an activity as play (versus non-play) (Smith & Vollstedt, 1985; Jenvey & Jenvey, 2002). The affective manifestation of joyfulness is generally captured by Lieberman's (1977) dimension of manifest joy (later presented as a domain in the CPS). Manifest joy refers to the child's free expression of joy in play. Pleasure, exuberance, smiling, laughing, singing and dancing while playing all illustrate joyfulness in play (Lieberman, 1977;

Barnett, 1990; 1991). There is significant data to suggest that the basic facial expressions associated with joy are innate and universal (Izard, 1994).

This conceptualization of joyfulness refers to a pleasure or happiness that is not fleeting, but grounded in a sense of love and hope. A child who has experienced trauma or abuse, and has lost hope for the future, may express a highly restricted range of emotions and not demonstrate any joyfulness in play (Macy et al., 2003). A child's joyfulness may be expressed with exuberant energy or more of a quiet, but observable, contentment.

Social Connection. Social connection refers to *the child's cooperative interaction with others and the surrounding world.* Social connection captures the child's connection to others, nature, music, and art. Grounded in interpersonal relationships that are caring, trusting, and safe, the child engages in mutually beneficial and collaborative interactions with his environment. In social play, the child can balance the expression of his authentic self with the demands of the world around him.

Returning to Winnicott's (1971) simple statement: "playing implies trust," social connection is viewed as an essential element of a child's capacity to fully and freely engage in play. A broad definition of social connection is utilized to describe a child's connection to others, and to the surrounding world, such as nature, culture, music, and art. It is hypothesized that this connection underlies the infant's first experiences with play, as he attempts to garner the attention and smiles of mother or to discover the rhythm of a favorite lullaby. Winnicott (1971) describes play as existing in the "potential space"

between the inner world (the “me”) and the external world (the “not me”). This potential space is first created in infancy, between the mother and infant (Winnicott, 1971).

The importance of social connection in play is elucidated by attachment theory. Early attachment theory predicted that a child’s interest in the exploration of the environment and their sense of competence to carry out such exploration are directly related to their sense of security in their caregiver as someone who will make sure that their needs for comfort and nurturing will be provided (Ainsworth et al., 1978; Bowlby, 1969). Research has revealed that the quality of attachment impacts the quality of exploration in toddlers (Main, Kaplan, & Cassidy, 1985); the quality and length of symbolic play episodes in toddlers (Slade, 1987); and play behaviors with ‘best friends’ in preschoolers (Park & Waters, 1989). Similarly, a secure attachment is predicted to affect the extent to which a child fully and freely engages in play. In fact, children with alternative ‘social maps’ (Garbarino, 2001), regarding their vulnerability and the powerlessness of their caregivers, may exhibit less socially connected play. That is, without a basic sense of security post trauma, children often exhibit social withdrawal and isolation (Macy et al., 2003).

While it is clear that not all play is social, it is assumed that a child with an unlimited capacity to engage fully in play will be driven to and capable of connecting with others in play, as well as with elements in nature, music, and art. It is important to remember that this measure of playfulness will not attempt to capture a child’s capacity for full engagement in play during one episode of play but will ask teachers to rate the

child's playfulness over the course of a two week period. A key component of this domain is that it is characterized by cooperative interaction. That is, the child who is socially connected in play engages in social interactions that are reciprocal and mutually beneficial. This should be distinguished from social competence skills in play, such as those measured by the Peer Interactive Play Scale (PIPPS) (Fantuzzo & Hampton, 2000). Social competence skills include verbalizing stories during play, encouraging others to join play, and helping to settle peer conflicts (Fantuzzo & Hampton, 2000). The proposed domain of social connection attempts to capture a child's more basic drive to connect with others and her cultural world, a drive that is reinforced by caring, trusting, and safe relationships with others. For example, social connection refers to the child's interest in the play of others, his enjoyment of play with others, and his capacity to play harmoniously. One could argue that social connection is a pre-requisite for social competence.

The Social Connection and Joyfulness domains of the proposed measure represent the socio-emotional dimensions of playfulness. Both are grounded in a child's sense of love and belonging. The connection between Joyfulness and Social Connection is elucidated by the concept of laughter. While often considered an expression of joy, laughter is highly influenced by the social context and the presence of others. Many expressions of joy are key ways of communicating and sharing positive feelings with others. However, joy can also be experienced in the absence of others and is then

typically expressed with a more peaceful countenance. Further, a child who has a strong desire for social connection may not regularly express joy or happiness.

The Current Study

Once working definitions of play and playfulness, as well as the four-factor model, had been finalized, items for the four domains were developed collaboratively with the clinical team. (See Methods for a more detailed description.)

Once the initial 42 items were selected for the first version of the Project Joy Playfulness Scale (PJPS), data collected proceeded in two consecutive phases. In the first phase, teachers in several preschool classrooms completed the 42-item PJPS for all participating children. The collected data was used to assess the psychometric qualities of the PJPS items. Poorly performing items were removed to create a final 20-item version of the PJPS. The 20-item version was evaluated for its structural validity, including the internal consistency of the four domains. In the second phase of data collection, 21-items (20 items plus an additional item that was judged to have clinical utility) alongside a comparison measure, the Children's Playfulness Scale (CPS) (Barnett, 1990; 1991) was completed by a new group of teachers at a new set of preschools. The collected data was used to establish cross-sample generalizability and to provide preliminary evaluation of the measure's construct validity, (specifically convergent and discriminant validity). The following hypotheses were tested below.

Factor structure: Hypothesis I. Because each domain has been constructed as a different aspect of a child's playfulness (i.e. behavioral, cognitive, socio-cultural, and

affective), it is assumed that they will be positively correlated, that is, they are not independent of each other. For example, positive affect is often considered a requisite for intrinsic motivation (Smith & Vollstedt, 1985) because it is assumed that children would not be intrinsically motivated to engage in a play activity unless it was pleasurable. As another example, a child's capacity to be in the 'present moment' during play (Active Engagement) may be directly related to their perceived sense of efficacy (Internal Control). On the other hand, a child who is capable of actively engaging in a play activity may not be very socially connected. Further, a child who seeks connection to others (Social Connection) may not smile or laugh during play (Joyfulness). Therefore, it is expected that the best fit for the PJPS is a four-factor model, in which the factors are inter-correlated but not redundant (Hypothesis I). That is, the four-factor model will fit the data better than alternative measurement models.

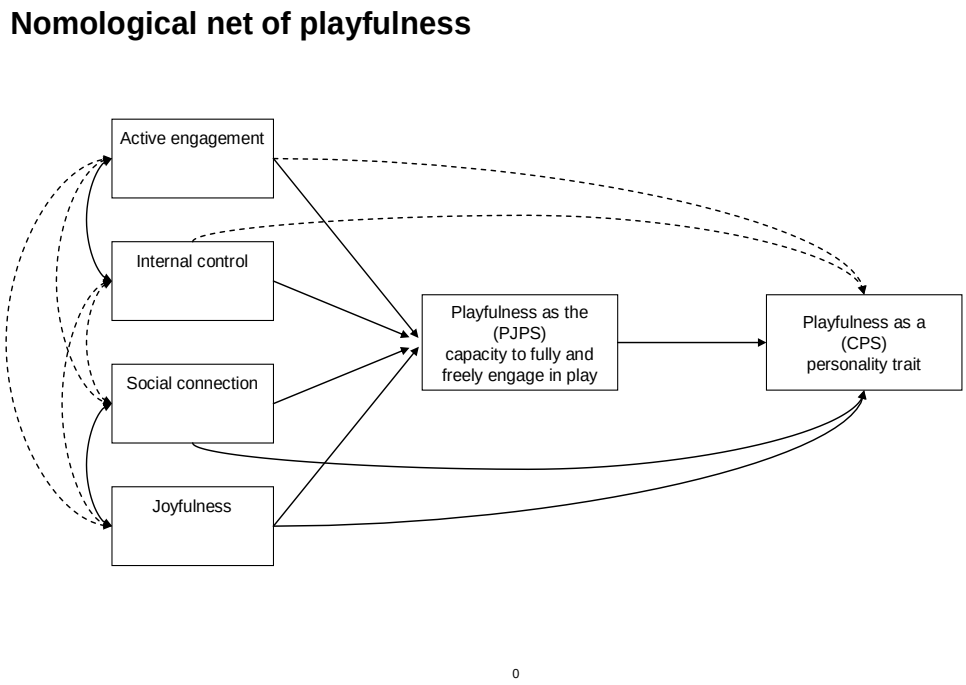
Convergent & discriminant validity: Hypotheses Group II. Elemental to assessing a measure's construct validity, convergent validity refers to the extent to which one measure of a construct is associated with another measure of the same underlying construct (Bryant, King, & Smart, 2007). In the reverse of convergent validity, discriminant validity refers to the extent to which one measure of a construct diverges from measures of related but separate constructs (Bryant et al., 2007). There are many ways to assess the convergent and discriminant validity of a measure. For the purpose of this study, convergent and discriminant validity will be demonstrated a) internally and b) in comparison with a criterion measure. For each, the overall existence of convergence

and divergence will be assessed and then a specific hypothesized pattern of convergence and divergence will be tested. The evaluation of a hypothesized pattern of correlations between factors works towards confirming the nomological validity of the measure (see Figure 2 for the proposed nomological net of playfulness).

First, demonstrating a basic level of convergent and discriminant validity for a multidimensional measure requires that the measure's subscales can be reliably delineated from each other. As stated in the discussion of structural validity, it is assumed that the PJPS has a four separate, but correlated, factors. Therefore, it is hypothesized that PJPS subscales will correlate "imperfectly" with each other (Hypothesis IIa). This is a general approach to assessing differences between correlation coefficients. It is also important to put forward a more specific hypothesis predicting the relationships between the individual factors. Active Engagement and Internal Control represent the cognitive-behavioral dimensions of playfulness and may be well-connected. For example, a child's capacity for enthusiastic focus may be directly related to her capacity for self-regulation in play. Therefore it is expected that Active Engagement and Internal Control will correlate more strongly with each other than with Social Connection and Joyfulness. On the other hand, Social Connection and Joyfulness represent the socio-emotional dimensions of playfulness and are both more deeply rooted in a child's sense of belonging, love, hope, and trust. Therefore, it is hypothesized that they will correlate more strongly with each other than with Active Engagement and Internal Control (Hypothesis IIb).

A second approach to convergent and discriminant validity requires that the four subscales of the PJPS be compared with a criterion measure, (i.e. the CPS) in order to evaluate the differential correlations between each subscale and the CPS. The CPS is employed as a criterion measure because it represents a related but distinct concept of playfulness as a personality trait and it demonstrates strong psychometric properties. It is assumed that the capacity to fully and freely engage in play (as measured by the PJPS) may be a prerequisite for playfulness as a personality trait (as measured by the CPS). Therefore, it is hypothesized that the PJPS factors will positively correlate with the CPS (Hypothesis IIc). However, it is also assumed that children who score positively on some of the PJPS factors may not necessarily score positively on the CPS. As before, a more general hypothesis is evaluated first: it is expected that the correlations between the four factors and the criterion measure, the CPS, will not be equal (Hypothesis IId). A more specific hypothesis outlines the proposed relationships between the PJPS factors and the CPS. The Joyfulness and Social Connection subscales appear to be pre-requisites for manifest joy, sense of humor, and social spontaneity (three categories of items included in the CPS). Therefore it is hypothesized that the CPS will correlate more strongly with the Joyfulness and Social Connection PJPS subscales than with the Active Engagement and Internal Control PJPS subscales (Hypothesis IIe).

Figure 2. *The Nomological Net of Playfulness.*



Note. The dotted lines represent weaker associations (as hypothesized) and the solid lines represent stronger correlations (as hypothesized) between factors.

CHAPTER TWO

METHODS

Item Construction

The development of the measure was a collaborative process involving both research and clinical members of the team. First, the academic literature on play and playfulness was merged with clinical expertise to establish working definitions of play and playfulness. Weekly conference calls with the team were held in order to define the four domains, and then generate a list of items for each domain. Then, each item was evaluated for quality, relevancy to the domain, and content coverage. Average ratings (across all team members) for each item were used to spark discussion regarding item selection. A final list of 50 items was used as the initial item list.

A group of eight teachers who were affiliated with Project Joy came together to review the initial item list. Teachers suggested content and wording modifications and provided feedback regarding response format and general usability characteristics of the measure. Once modifications were made to the item list based on teacher feedback, a panel of nine academic and clinical experts reviewed the initial PJPS item list and completed ratings for each regarding the item's clarity and the item's relevance to playfulness. Academic experts in the empirical play literature, developmental psychology, early childhood education, and measure development, as well as clinical

experts in trauma psychology, preschool education, and cooperative play completed the ratings and also provided qualitative feedback.

Once all of the items were revised according to the panels' feedback, the panel members were asked to review the edited items. The teachers reconvened to rate each edited item regarding its clarity and its relevance to playfulness. Based on their daily experience in the classroom, the group of teachers brainstormed examples to include in the parenthetical explanations of many of the items [e.g., Child takes initiative during play with others (e.g., suggests new games, recommends new rules)]. Final feedback from the panel of nine academic and clinical experts was solicited as well (including new ratings of clarity and relevance).

With each round of feedback, the collaborative team reviewed the item ratings (with respect to clarity and relevance) and the qualitative feedback and made changes to the items. After the second round of feedback, 42 items remained: 10 Active Engagement, 10 Internal Control, 11 Joyfulness, and 11 Social Connection items. Before beginning data collection, five teachers (who had not participated in the teacher panel) tested the 42-item PJPS for usability. Once the teachers completed the measure, they were asked for feedback regarding the clarity of the items, the ease of use of the instrument (re: directions, items, and response format), and recommended modifications.

Participants

Phase I. Teachers (n=42) and children (n=222) from six different preschools in the Boston metropolitan area participated in the first phase of data collection. The six

preschools included two HeadStart programs (*n*=138), three mixed-income childcare centers located in low-income neighborhoods (*n*=59), and one private preschool (*n*=25). One of the HeadStart centers housed ten classrooms and another childcare center had three separate classrooms. The other four preschools had one classroom each. Twenty-one classrooms in total participated with the number of child participants per classroom ranging from three to 25.

The sample of participating children was balanced for gender with 47.3% (*n*=105) boys and 52.3% (*n*=116) girls. Children participating in the study ranged in age from 23 months to 73 months (*M*=53.96, *SD*=8.87). Only two children were under three years old and only two children were over five years old. The racial-ethnic background of the sample was as follows: 7.2% (*n*=16) Asian/Pacific Islander, 22.5% (*n*=50) African-American, 53.2% (*n*=118) Latino, and 14.9% (*n*=33) White. Household income was used to represent the socio-economic status of the sample. Family incomes ranged from less than $10,000 to greater than $150,000 with the following breakdown: 3.6% (n=8) less than $10,000, 48.2% (n=107) between $10,000 and $19,999, 30.2% (*n*=67) between $20,000 and 29,999, and 17.1% (*n*=38) greater than $30,000.[7]

Two teachers from the same classroom completed the PJPS measure for each participating child. Mirroring the imbalanced gender breakdown of preschool teachers nationally, 11.9% (*n*=5) of participating teachers were male and 88.1% (*n*=37) were female. Teachers ranged in age from 23 to 62 (*M*=38.97, *SD*=11.96). The racial-ethnic

[7] One child's gender was not reported. Five children did not report ethnicity and two children's household income was not recorded.

background of the teachers was as follows: 14.3% (*n*=6) African American, 52% (*n*=22) Latino, and 31.0% (*n*=13) White.

Teachers reported their highest level of education as follows: 35.7% (*n*=15) had a high school degree, 38.1% (*n*=16) had completed an Associate's degree, 19.0% (*n*=8) had a Bachelor's degree, and 2.4% (*n*=1) had a graduate degree. Though all participating teachers were fluent in English, 47.6% (*n*=20) reported English as their second language.[8]

Phase II. Teachers (*n*=20) and children (*n*=120) from seven different preschools in the Boston metropolitan area participated in the second phase of data collection. The seven preschools were all HeadStart programs serving low-income neighborhoods. One preschool had four classrooms; the other six preschools had one classroom each. In total, ten classrooms participated with the number of child participants per classroom ranging from six to 18.

The sample of participating children was balanced for gender with 46.7% (*n*=56) boys and 53.3% (*n*=64) girls. Children participating in the study ranged in age from 37 months to 67 months (*M*=51.76, *SD*=6.87). The racial-ethnic background of the sample was as follows: 7.5% (*n*=9) Asian/Pacific Islander, 33.3% (*n*=40) African-American, 34.2% (*n*=41) Latino, 10.8% (*n*=13) White, and 11.7% Other (*n*=14). Household incomes ranged from less than $10,000 to $39,999 with the following breakdown: 23.3% (n=28) less than $10,000, 14.2% (n=17) between $10,000 and $19,999, 5.0% (*n*=6) between $20,000 and 29,999, and 5.8% (*n*=7) between $30,000 and $39,999. Income was not

[8] Five teachers did not report age, one teacher did not report ethnicity, and two teachers did not report their level of education.

reported for 51.7% (n=62) of the sample. However, because all participating children attended neighborhood HeadStart programs that have eligibility requirements based on income, it was assumed that all of the household income for all participants was less than $39,999.[9]

Two teachers from the same classroom completed the set of measures for each participating child. The sample of participating teachers was predominantly female (95%, *n*=19) and 5% male (*n*=1). Teachers ranged in age from 20 to 59 (*M*=37.06, *SD*=12.00). The racial-ethnic background of the teachers was as follows: 5% (*n*=1) Asian/Pacific Islander, 40.0% (*n*=8) African American, 15.0% (*n*=5) Latino, 25.0% (*n*=5) White, and 10% (n=2) Other.

Teachers reported their highest level of education as follows: 55.0% (*n*=11) had a high school degree, 25.0% (*n*=5) had completed an Associate's degree, and 15.0% (*n*=3) had a Bachelor's degree. Though all participating teachers were fluent in English, 60.0% (*n*=12) reported English as their second language.[10]

Teacher differences between Phase I and Phase II. Demographic differences between the two teacher samples (Phase I and Phase II) were not evidenced regarding teacher age, education levels, English as a Second Language (ESL), or gender. However, 5 male teachers participated in Phase I (out of a total of 42 teachers) and only one male teacher participated in Phase II (out of a total of 20 teachers). There was a significant

[9] Age was not reported for 14 children and ethnicity was not recorded for three children.

[10] Five teachers did not report age, one teacher did not report ethnicity, and two teachers did not report their level of education.

difference between the ethnic breakdowns of each teacher sample: $\chi^2=15.28$, $p<0.01$. In Phase I, over 50% of the participating teachers described themselves as Latino whereas in Phase II the ethnicity of the majority of teachers was split more evenly between Latino, African American, and White.

Procedures

For each phase of data collection, center directors at preschools in the Boston area were contacted and invited to participate. Each preschool convened its teachers to review the research objectives. Classrooms in which both preschool teachers consented to participate were then included in the study. Upon approval from teachers, parents were informed of the research and its purpose. Parents gave written consent for participating children. Consents were translated into Spanish for Spanish-speaking families.

In Phase I, teachers were asked to provide demographic information about themselves. For each participating student, the two classroom teachers were asked to complete the original 42 PJPS items. Demographic forms were completed by the children's parents.

In Phase II, teachers were asked to complete the 20-item PJPS as well as a second criterion measure of playfulness, the Children's Playfulness Scale (CPS) (Barnett, 1990; 1991). In addition, teachers were asked one question designed to assess the children's overall playfulness: "On a scale of 0 to 100, how would you rate this child's playfulness?" An additional item was included alongside the final 20 PJPS items because it was believed to have some clinical utility. However, once the data was entered, the

twenty-first item was discarded as it appeared redundant. As in Phase I, teacher demographics and student demographics were collected from participants.

In order to retain as much data as possible, missing values were imputed using the expectation-maximization (EM) algorithm for multiple imputation in the PRELIS program. The EM method is an iterative model that uses maximum likelihood estimates of the parameters to determine values for the missing data (Dempster, Laird, & Rubin, 1977). The model involves two steps: a maximization step and an expectation step in which both the missing values and parameters are estimated. The expected values then replace the missing values. The EM method is popular, particularly for use with psychometric data, in part because each iteration increases the value of the likelihood function (Olinsky, Chen, & Harlow, 2003). Further, empirical investigation has shown EM to successfully estimate missing values with a range of sample sizes and across a range of 'percents missing' (Olinksy et al., 2003).

Measures

Project Joy Playfulness Scale (PJPS). The initial version of the PJPS included 42 items. The questionnaire's instructions asked teachers to "mark the response that describes how this child has behaved in the past two weeks." Instructions were printed in both English and Spanish. The items were only printed in English. Each item was rated on a 4-point Likert scale. Teachers were asked how true each statement was for each child, ranging from "not true" to "completely true." Parenthetical explanations of a particular behavior (e.g., climbing on the jungle gym, building a block tower, swinging

on a rope) were included in order to increase clarity of items. The final version of the PJPS included 20 items, five items for each of the four factors.

Children's Playfulness Scale (CPS). The Children's Playfulness Scale (CPS) (Barnett, 1990; 1991) was used to assess convergent and discriminant validity in the second phase of data collection. Based on the original scale by Lieberman (1977), the CPS was designed to measure playfulness as a personality trait in the individual child. The CPS includes 23 items rated on a five-point Likert scale ranging from (1) *doesn't sound at all like the child* to (5) *sounds exactly like the child*. Higher scores on the measure indicate higher levels of playfulness with the exception of one reverse-scored item. The measure yields a total playfulness rating as well as ratings in five domains: physical, social/emotional, cognitive spontaneity, manifest joy, and sense of humor. It includes items such as "The child gently teases others while at play" and "The child prefers to be active rather than quiet in play." The measure has been used as a teacher-report form in preschool classrooms.

The CPS has demonstrated strong psychometric properties. Its inter-rater reliability between two teachers was very high across three time points (ranging from 0.922 to 0.971) (Barnett, 1990). Chronbach's alpha coefficients for the entire scale, across multiple preschools settings, ranged from 0.77 to 0.88 (Barnett, 1991). Test-retest reliability at 1-month and at 3-months ranged from 0.84 to 0.89. Barnett (1991) also examined the construct validity of the CPS through the comparison of the measure to three other play scales; comparisons between the CPS and the three scales were generally

positive and statistically significant. More recently, Trevlas et al. (2003) used confirmatory factor analysis to examine the underlying structure of the CPS. A unidimensional model was hypothesized and supported. That is, the five factors mentioned above loaded onto one factor. Therefore, the current study only employed the total score and did not use the individual factor scores. In the current study, the measure demonstrated strong internal consistency (Development sample: α = .902; Confirmation sample: α = .924).

CHAPTER THREE

RESULTS

Analytical Approach

In order to use the collected data most efficiently, render the most accurate assessment of the data, and evaluate hypotheses most effectively, several decisions regarding the analytical approach were made. These decisions are outlined below in order to provide an overall roadmap for the Results section.

First, for both phases of data collection, two teachers were asked to complete the measures for each participating child. This rendered a pair of teacher ratings for each participant. In order to most efficiently use the available data, the pairs of teacher ratings for each participating student were split into two separate samples: the Development sample and the Confirmation sample in Phase I and the Validation sample and the Confirmation sample in Phase II. Therefore the two samples contained data on the same children but one set of teacher ratings were randomly assigned to the Development sample and one set was randomly assigned to the Confirmation sample. In Phase I (n=222), the Development sample was used to refine the original set of items to the best-performing items (i.e., top five for each factor) and assess fit statistics. The analysis was then rerun with the Confirmation sample to assess the model's fit with a second set of teacher ratings. In Phase II (n=120), analyses of model fit, cross-sample generalizability, and convergent/discriminant validity were first run in the Validation sample and then

replicated in the Confirmation sample. To create these two samples, the teacher pairs randomly assigned to two groups, balancing for the following teacher-related variables: race, gender, age, education level, and English-proficiency. In Phase I, 21 pairs of teachers (42 teachers total) and in Phase II, 10 pairs of teachers (20 teachers total) participated in the study.

Second, in order to prevent the list-wise loss of data in LISREL (the program employed for CFA), missing data were imputed using the expectation-maximization (EM) algorithm with multiple imputation in the PRELIS program. The PRELIS program uses all available data to determine the best estimate of missing data values and impute those values. Once the missing data were imputed, we ran correlational tests to ensure that the imputed data set was analogous to the original data set.

Third, in order to employ confirmatory factor analysis (CFA) in developing and confirming the factor structure of a measure, it is essential that the data are primed for analysis. One basic assumption of CFA is that observations are randomly and *independently* sampled. However in this study, participating children were nested within classrooms (with specific teachers) that were nested within schools. Therefore, ratings of children from the same classroom (with the same teacher), and from the same schools, may share some variance that is unrelated to playfulness. In order to assess the impact of teacher and school, Step 1 of data analysis involved running two sets of one-way ANOVAs for both the Development (or Validation) and the Confirmation samples. When significant differences at the $p<.01$ between schools and between teachers were found,

the variances associated with school and teacher were removed using multiple regression analyses. To ensure that the doubly residualized data still mirrored the raw (original) data, correlational analyses were undertaken. Finally, CFA was employed with both the residualized and the raw data sets in order to detect any major differences in findings. Because the findings based on the raw data set reflected the findings from the residualized data, only findings based on analysis of residualized data will be included in this paper.

Fourth, to identify the best-performing items and test our hypotheses regarding factor structure, generalizability of the model, and convergent/discriminant validity, we used CFA via LISREL 8 (Joreskog & Sorbom, 1996). Within CFA, multiple methods exist to evaluate model fit. The method employed depends on key properties of the data (e.g., distribution, scale of measurement). The Maximum Likelihood Estimation (MLE) method is the most commonly used method of estimation. This method detects the values of the model parameters that maximize the likelihood that the data will fit those parameters. The MLE method assumes that the data are normally distributed observations of continuous variables (http://www.ssicentral.com/lisrel/techdocs/Session10.pdf). Still, the MLE method is often used with ordinal variables (such as questionnaire data) simply by treating the ordinal data as continuous. However, the application of MLE on ordinal data can provide misleading results especially when the measurement scale has four points or fewer (Joreskog & Sorbom, 1999). Because the PJPS was rated on a 4-point scale, the MLE method was not appropriate for our data. We ran CFA with the MLE

method and then ran CFA with an estimation method suitable for ordinal data: the Ordinal Diagonally Weighted Least Squares (DWLS) method. Whereas the MLE method relies on the Pearson correlation matrix, the Ordinal DWLS method uses a polychoric correlation matrix. The polychoric correlation matrix adjusts the item variances for non-continuity. It is important to note, however, that the residuals based on the original ordinal data were no longer strictly ordinal in nature.

In order to address this non-normality in the residualized data, we concluded the process by running the CFA modeling with a method designed to handle non-normality in continuous data: robust MLE. Robust MLE employs an asymptotic covariance matrix in order to adjust the item variances for non-normality (skewness in responses). This method produces the Sattora-Bentler scaled chi square statistic (S-Bχ^2) which is designed to improve estimation of model fit when the data demonstrate multivariate non-normality. In the end, we determined that robust MLE was the most appropriate estimation method to use in evaluating model goodness of fit. Therefore, for Step 2 and Step 3, only the results of the analysis using robust MLE are reported in this paper.

Finally, the following techniques were employed to evaluate our hypotheses. Hypothesis I (that a four-factor model in which the factors are intercorrelated but not redundant would be the best fit for the data) was evaluated in two ways. First, a model's goodness of fit can be assessed using several different fit statistics. For the purpose of this study, two measures were employed: 1) one measure of absolute fit, the root-mean-square error of approximation (RMSEA, Steiger, 1990) and 2) one measure of relative fit, the

comparative fit index (CFI, Bentler, 1990). Previous literature provides standards from which to interpret the goodness-of-fit indices. The RMSEA is based on the size of the residuals when the model is used to predict the data. According to Browne and Cudeck (1989), between 0.0 and 0.05 indicates a "close fit," 0.05 to 0.08 is a "reasonably close fit," and above 0.10 is an "unacceptable model." Measuring relative fit, the CFI provides information on how much better the proposal model (i.e. a four-factor model) fits the data in comparison with an alternative model (i.e. a one factor model). According to Bentler and Bonett (1980), the CFI should meet or exceed 0.90 if the model is a good fit. We applied these well-accepted standards for RMSEA and CFI when evaluating model fit.

The second criterion to assess the adequacy of the model's fit was the examination of each factor's internal consistency reliability. Internal consistency in an instrument is an important dimension of reliability (Haynes, Nelson, & Blaine, 1999). The internal consistency reliability of each of the four factors was examined using Chronbach's alpha. Reliability coefficients are expected to meet or exceed 0.70. It has been suggested that clinical measures should have alphas in excess of 0.90 (Nunnally & Bernstein, 1994). However, others persuasively argue that very high internal consistencies may indicate unnecessary redundancy (DeVellis, 1991). DeVellis (1991) proposed the following ranges for acceptable reliability coefficients: 0.65-0.70 (minimally acceptable), 0.70 – 0.80 (respectable), and 0.80-0.90 (very good). Very high alphas are typically obtained by increasing the number of items in the measure. Because the final version of the PJPS will be 20 items, the expected coefficient alpha for each

dimension can be relaxed. Generalizability across the Development/Validation and Confirmation samples in each phase of data collection, as well as cross-sample, was used as further confirmation of the four-factor model.

The second group of hypotheses referred to the measure's convergent and discriminant validity. The convergent and discriminant validity was approached in two separate ways: 1) by assessing the correlations between the factors within the PJPS and 2) by assessing the correlations between the PJPS factors and a criterion measure, the Children's Playfulness Scale (CPS). Within each approach, the convergence and divergence of the measures were assessed in two separate analyses: first with a global test of homogeneity of intercorrelations, followed by a more specific test of the hypothesized patterns of correlations within factors and between factors and the CPS.

Hypotheses IIa & IIb refer to the convergent and discriminant validity of the four PJPS factors. It was posited that the four factors would differentially (rather than equally) relate to one another (Hypothesis IIa). Heterogeneity of factor intercorrelations suggests that the four factors do not measure the same aspects of the underlying construct (Bryant et al., 2007). Therefore, an omnibus test of the homogeneity of the factor intercorrelations was conducted by comparing the goodness-of-fit chi-square values of the four-factor model without constraints versus the four-factor model with equality constraints (Bentler, 1995). This type of comparison is referred to as a scaled-difference chi-square test.

Hypothesis IIb proposed that the Joyfulness and Social Connection subscales would correlate more strongly with each other than with the other two subscales and

similarly the Active Engagement and Internal Control subscales would correlate more strongly with each other). In order to assess divergence, we tested each of the six PJPS factor pairs to determine which factors were most correlated. For each factor pair, we ran a series of scaled-difference tests comparing the goodness-of-fit chi-square values of 1) a model in which one pair of factors is forced to correlate more strongly with each other than with the other two factors to 2) the unconstrained model.

Hypothesis IIc stated that the four factors of the PJPS will correlate strongly with the CPS. The same procedures described above were used to test Hypothesis IId (that the four factors would differentially correlate with the CPS) and Hypothesis IIe (more specifically, that the CPS would correlated more strongly with the Joyfulness and Social Connection subscales than with the Active Engagement and Internal Control subscales). We first ran an omnibus test of the homogeneity of the factor intercorrelations, followed by a series of scaled difference tests to determine which factor pair evidenced the strongest correlation with the CPS.

Phase One, Stage 0: Preliminary Data Treatment

Splitting data into the Development and the Confirmation samples. Once the data had been split into the Development and Confirmation samples, t-tests, chi-square tests and Fisher's exact test were run to examine the equivalence of the two samples with respect to all examined teacher variables: teacher age (t=0.42, p=0.68), teacher gender (Fisher's exact p=0.65), teacher ethnicity (χ^2=0.23, df=2, p=0.89), teacher education

(χ^2=1.50, df=3, *p*=0.68), and teacher English proficiency (χ^2=0.38, *df*=1, *p*=0.54). There were no significant differences between the two samples for the aforementioned variables. The valid sample sizes were *n*=222 for the Development sample and *n*=222 for the Confirmation sample.

Imputing missing data. Across all items in the Development sample, 0.1% of cases were missing and in the Confirmation sample, 0.4% of cases were missing. Following the data imputation, the data were examined to assess any significant differences pre- and post- data imputation. For each item, mean scores, standard deviations, kurtosis, and skewness varied by hundredths of a point. Therefore, it appears that the data imputation did not significantly vary the data for the purpose of these analyses.

Identifying and controlling for site and teacher effects. In order to identify and then correct for variance in the data due to school or teacher, we conducted a multi-step process. First, 42 one-way ANOVAs were conducted to identify any differences in the way that children were rated on the 42 PJPS items due to the school the children attended. Due to the large number of ANOVAs that were run, the likelihood of Type I error was increased. In order to minimize Type I error, a 0.01 significance level was employed.

Almost all 42 items showed significant school differences at the 0.01 level. Post-hoc tests revealed that all six schools showed significant differences across the items. Because the schools had varying sample sizes, post-hoc Tukey tests with the Games

Howell modification were used. The Tukey test was originally designed for the comparison of groups with equal sample sizes (Howell, 2002). While there are several modifications for the Tukey test that adjust for unequal sample sizes and unequal variances, the Games and Howell modification is most successful at correcting for unequal sample sizes, unequal variances, and simultaneously controlling for Type I error (Keselman & Rogan, 1978).

In order to control for school effects, the variance in each item (dependent variable) attributed to school differences was removed using multiple regression analyses. Five of the six schools were dummy-coded and entered as independent variables into the multiple regression analysis. In the Development sample, variance due to school effects ranged from 5% to 27% across the 42 items. The median r^2 across the 42 items was 0.15, (M=0.15, SD=0.05). In the Confirmation sample, variance due to school effects ranged from 2.8% to 20.9%. The median r^2 across all items was 0.08, (M=0.09, SD=0.04). Once variance due to school effects was removed, the unstandardized residual for each item was saved to be used in the next set of analyses.

In a second set of analyses, the same steps described above were employed to identify and control for variance due to teacher differences. Forty-two one-way ANOVAs were run using the residualized data set. In the Development sample, only 11 items showed significant teacher differences at the .01 level. Because the number of children matched to a teacher varied significantly, post-hoc Tukey tests with the Games Howell modification were employed again. The post-hoc tests revealed 12 teachers in the

Development sample who showed significant differences across multiple items (seven or more significant contrasts with other teachers). These 12 teachers were dummy-coded and entered as independent variables into the multiple regression analysis. In the Development sample, variance due to teacher effects ranged from 2.4% to 22.4% across the 42 items. The mean and median r^2 across the 42 items was 0.08 (*SD*=0.04). Once the residualizing process was complete, one-way ANOVAs revealed no significant school effects (at the p=0.10 level) or teacher effects (at the p=0.05 level).

In the Confirmation sample, 33 items showed significant teacher differences at the .01 level. The post-hoc tests revealed nine teachers in the Confirmation sample who showed significant differences across multiple items (ten or more significant contrasts with other teachers). Variance due to the effects of these nine teachers ranged from 6.5% to 37.3% across all items. The median r^2 across all items was 0.13 (*M*= 0.14, *SD*=0.06). Post-residualizing, one-way ANOVAs showed no significant school effects (at the p=0.10 level) or teacher effects (at the p=0.01 level). The new unstandardized residuals for both the Development and Confirmation samples were saved to be used in the CFA analyses.

In order to assess the impact of the residualizing process on the raw data, correlations were run between the doubly-residualized data (once both school and teacher effects had been controlled for) and the raw data. Correlational analyses showed that the association between the unstandardized residuals and the original raw data was very strong in both samples. In the Development sample, Pearson's *r* ranged from 0.79 to 0.95

(*M*=0.88, *SD*=0.04, median=0.87). In the Confirmation sample, Pearson's *r* ranged from 0.79 to 0.94 (*M*=0.89, *SD*=0.03, median=0.89). Because of the high correlations between the raw data and the doubly-residualized data, the doubly-residualized data were selected for use in the CFA analysis.

Evaluating the psychometric properties of the items. Following imputation and residualization, items were evaluated for multivariate normality. To ensure that the distribution of the data was close enough to normal to allow for CFA analysis, skewness and kurtosis values were expected to fall between -2.00 and 2.00 (Tabachnick & Fidell, 2006). Skewness across all 42 items ranged from -1.040 to -0.070 in the Development sample and -1.202 to -0.187 in the Confirmation sample. In the Development sample, kurtosis ranged from -0.737 to +2.064. In the Confirmation sample, kurtosis for one item was +2.248 but all other kurtosis values fell between -0.428 and +1.693.

Stage I: Developing & Refining the Measurement Model

Once the total sample was assigned to two groups (the Development sample and the Confirmation sample) and doubly-residualized to control for school and teacher effects, the data were ready for analysis. The goal of the first stage was to develop a measurement model for the PJPS, in two steps: 1) in the first step, we used CFA on the Development sample to identify the best-performing indicators for each of the four PJPS factors, and, 2) in the second step, we employed CFA to estimate the goodness-of-fit of our four-factor measurement model in the Development Sample. By evaluating both the internal consistency of the individual factors and identifying the overall model that

provided the best fit for the data, we aimed to develop a set of four factors that most reliably captured responses to the PJPS items.

Step 1: Identifying the best-performing indicators. In order to identify the most reliable items for each of the factors, we used CFA to run each of the four factors as separate unidimensional one-factor solutions. Our approach is described by Bagozzi & Edwards (1998) as the "total disaggregation" approach to measurement modeling. To assess the reliability of the 10 Active Engagement items, 10 Internal Control items, 11 Joyfulness items, and 11 Social Connection items, we examined each item's squared multiple correlation (R^2) in the unidimensional solution. R^2 reveals the proportion of variance in each item that is shared with the underlying factor (e.g., Active Engagement). Table 1 includes R^2 values for all forty-two original items.

Measurement models with more than four to six items per factor are likely to provide a poor fit to the data (Bagozzi & Heatherton 1994). That is, a greater number of items per construct can result in multiple 'optimal solutions' instead of one unique optimal model that best represents the relationships between the items (Little, Cunningham, & Shahar, 2002). Ideally, the four to six items should simultaneously maintain the breadth and the depth of the factor: that is, broadly cover the multiple and distinct aspects of a factor while targeting specific behaviors that capture the fundamental components of the factor. Therefore, we sought to identify the best-performing 3-6 items per factor whilst retaining the 'essence' of each factor. This process required balancing both psychometric data regarding each item with conceptualjudgment in the inclusion of

items. Psychometric and practical information related to the selection of items will be reviewed below. Our overall goal was to distill the original 42-item PJPS to a brief 15-24 item measure that would evidence a strong fit for the data, and at the same time include a set of reliable indicators per the four factors of playfulness.

Employing the Robust Maximum Likelihood Estimation (robust MLE) method, we ran single-factor CFA solutions for each factor in order to calculate the R^2: Active Engagement (min= 0.38, max = 0.72, M = 0.55); Internal Control (min= 0.34, max = 0.77, M = 0.56); Joyfulness (min= 0.04, max = 0.70, M = 0.52); Social Connection (min= 0.34, max = 0.73, M = 0.59). For the Active Engagement and Internal Control factors, items with the top five R^2 values (all greater than R^2=0.59) were selected for further modeling. For both the Joyfulness and the Social Connection factors, the psychometric information (e.g., R^2 values) needed to be balanced with conceptual judgment in order to refine the 11 original items in each factor down to five.

In the Joyfulness factor, the item with the 5th highest R^2 value ("Child chooses to participate in group activities even when he/she is not the center of attention") was replaced by an item with an R^2 value two hundredths of a point lower, ["During play, child engages in silliness (e.g., does silly things that make others laugh)"]. The replacement was made in order to increase face validity of the factor, and include an item that captured the humorous or "silly" aspect of joyful play. In the Social Connection factor, the item with the 5th highest R^2 value ["Child is appropriately affectionate with others during play (e.g., smiles at others, gives hugs or hi-fives, cheers for others)"] was

replaced by an item with an R^2 value three hundredths of a point lower, ["Child plays harmoniously with others (e.g., gets along with peers, negotiates minor conflicts)"]. In this case, we decided that the latter item captured a key aspect of social connection in play (the capacity to make adjustments in order to maintain the continuity of play) that was necessary to round out the items in the factor. Neither item replacement produced a change in alpha at the factor level (for both the Joyfulness and Social Connection factors: $\alpha = 0.91$).

The item selection process rendered a set of twenty items (five for each of the four factors) which were then used to develop the PJPS measurement model. See Table 2 for the standardized factor loadings and squared multiple correlations for the final twenty items across all four samples.

Step 2: Refining the PJPS measurement model. To test our first hypothesis (Hypothesis I) regarding factor structure, we evaluated the adequacy of several different measurement models on the Development sample data using the robust MLE method. The following criteria were used to determine which model provided the best fit with the data: 1) the model's goodness of fit, assessed using one measure of absolute fit, RMSEA (Steiger, 1990) and one measure of relative fit, CFI (Bentler, 1990) and 2) internal consistency reliability, measured by Chronbach's alpha.

In order to rule out the one-factor measurement model, we used CFA to impose a one-factor model on the Development sample data first including 20 items total (top five per factor). As anticipated, the 20-item solution provided a poor fit to the data (20-item

model: S-Bχ^2 (170, N= 222) = 977.61, minimum fit χ^2 = 1045.61, RMSEA=0.147, CFI=0.93. The reliability of the one factor model, as measured by Chronbach's alpha (α), was expectedly high (20 items: α= 0.96).

Once the unidimensional solution to the data proved untenable, we tested the intended four-factor model with 20 total items. The 20 item four-factor model performed significantly better than the unidimensional solution $\Delta\chi^2(6) = 451.75$, $p<0.001$ and provided a close fit to the data, S-Bχ^2 (164, N= 222) = 283.29, minimum fit χ^2 = 398.03, RMSEA=0. 057, CFI=0.99, with strong reliabilities for all four factors: Active Engagement (α = 0.89), Internal Control (α = 0.92), Joyfulness (α = 0.91), and Social Connection (α = 0.91). The phi (ϕ) coefficient matrix gives the factor correlations (or inter-factor loadings) in the LISREL system. Standardized ϕ coefficients are similar to Pearson product-moment correlations, however the effects of measurement error have been removed. That is, the factor intercorrelations are adjusted for differences in the reliabilities of the PJPS factors (see above for reliabilities). As expected, in the four-factor model with 20 items, the four factors intercorrelations were moderately to highly intercorrelated, with standardized ϕ coefficients ranging between 0.66 and 0.85. Therefore, the factors share between 43% and 72% of their variance. Table 3 includes factor intercorrelations (standardized ϕ coefficients) for the four factor model in both the Development and Confirmation samples.

Due to the relatively strong correlations between factors, we tested whether or not the four correlated, first-order factors actually reflected a single 2nd order factor of

playfulness. That is, could the covariance between the four factors be partly explained by a 2nd order factor of playfulness? Whereas first-order factors capture the covariance between the *items*, second-order factors are derived from the covariance between the *factors*. The 2nd order CFA model also provided a strong fit to the data, S-Bχ^2(166, N=222) = 287.89, minimum fit χ^2= 409.62, RMSEA = 0. 058, CFI = 0.99. Therefore, the four factors not only operate independently but their covariation can be explained by a second-order playfulness factor. This suggests that the PJPS measure can provide separate factor scores for each factor, as well as an overall playfulness score for the measure.

Stage II: Evaluating the generalizability of the PJPS model. Once we had established the reliability of the four-factor measurement model in the Development sample, we used the Confirmation sample data to assess the model's generalizability. It is important to note that the Development and Confirmation samples are not independent as the samples were created by splitting each pair of teacher ratings for each child into the two data samples.

The CFA results in the Confirmation sample matched the results from the Development data. As expected, the unidimensional solution (20-item one-factor model) produced a poor fit to the data, S-Bχ^2 (170, N= 222) = 912.42, minimum fit χ^2= 921.72, RMSEA=0.141, CFI=0.92, α= 0.94 and fit the data significantly worse than did the four-factor model, $\Delta\chi^2(6) = 129.65$, $p<0.001$. In contrast, the 20-item four factor model replicated strong goodness of fit, S-Bχ^2 (164, N= 222) =357.73, minimum fit χ^2= 430.14,

RMSEA=0.073, CFI=0.98, with solid reliabilities for the factors: Active Engagement (α = 0.87), Internal Control (α = 0.89), Joyfulness (α = 0.81), and Social Connection (α = 0.91). Factor intercorrelations ranged from 0.57 to 0.83, indicating that the factors share between 33% and 69% of their variance (see Table 3 for the matrix of factor intercorrelations). As in the Development sample, the 2nd order model was also a strong fit, S-Bχ^2 (166, *n*= 222) = 453.63, minimum fit χ^2 = 368.20, RMSEA=0.074, CFI=0.98.

Table 1

Means, Standard Deviations, and Squared Multiple Correlations (R^2s) for Initial Item List (Phase I Development Sample)

	PJPS Original Item	*M*	*SD*	R^2
	Active Engagement			
ae1	Child is able to focus on a play activity that he/she enjoys	3.48	0.66	0.38
ae2	Child actively participates in games and activities	3.33	0.72	0.53
ae3	Child keeps playing when a play activity becomes challenging (e.g., rebuilds tower after it has fallen, tries again to catch the ball)	3.07	0.82	0.48
ae4	**Child engages in play without encouragement or praise**	3.23	0.75	0.59
ae5	**Child engages in play enthusiastically (e.g., eagerly, passionately)**	3.32	0.71	0.65
ae6	Child finds ways to play in almost any environment (e.g., playground, classroom)	3.36	0.69	0.55
ae7	Child can play with a toy or object in several different ways (e.g., uses a block as a telephone, a camera, a microphone)	3.40	0.74	0.39
ae8	**Child moves freely and actively during play**	3.34	0.71	0.59
ae9	**Child finds lots of different play activities interesting and engaging**	3.23	0.79	0.72
ae10	**Child shows curiosity in play (e.g., explores objects, asks questions)**	3.23	0.78	0.61
	Internal Control			
ic1	Child is willing to try new play activities and games	3.19	0.78	0.54
ic2	During play, child recovers quickly from small disappointments (e.g., not being able to play with a specific toy)	2.84	0.84	0.35
ic3	**When playing, child tries challenging things all by him/herself (e.g., climbing on the jungle gym, building a block tower, swinging on a rope)**	3.14	0.77	0.61
ic4	**When playing, child has an "I can do it" attitude**	3.04	0.80	0.61
ic5	**Child continues in challenging play even when feeling frustrated**	2.77	0.82	0.63
ic6	**Child takes initiative during play with others (e.g., suggests new games, recommends new rules)**	2.90	0.89	0.74
ic7	**Child shares ideas and suggestions during play**	2.92	0.89	0.77

ic8	**Child participates in play both as a leader and a follower**	2.96	0.85	0.67
ic9	Child sustains attention in a play activity that he/she enjoys	3.34	0.67	0.34
ic10	During play, child takes turns and shares toys with little or no adult intervention	3.03	0.76	0.36
	Joyfulness			
joy1	**Child smiles often during play**	3.32	0.73	0.67
joy2	**Child celebrates his/her successes (e.g., smiles, laughs, dances, "jumps for joy")**	3.36	0.70	0.70
joy3	**Child laughs at silly or funny things during play**	3.36	0.71	0.66
joy4	**During play, child engages in silliness (e.g., does silly things that make others laugh)**	3.15	0.85	0.58
joy5	**Child enjoys music and dance activities**	3.25	0.83	0.68
joy6	Child chooses to participate in group activities even when he/she is not the center of attention	3.18	0.72	0.60
joy7	Child finds opportunity for play in routine activities (e.g., putting on coats and shoes, washing hands, cleaning up)	3.13	0.82	0.39
joy8	Child enjoys playing by his/herself	2.98	0.94	0.04
joy9	Child plays with joy and delight	3.32	0.67	0.54
joy10	Child appears peaceful and content when playing	3.32	0.65	0.28
joy11	Child has fun in many different types of play activities	3.36	0.71	0.57
	Social Connection			
sc1	Child enjoys playing with others	3.38	0.69	0.56
sc2	Child is curious about the play of others (e.g., notices what other children are playing, watches others play with interest)	3.25	0.72	0.39
sc3	Child welcomes others to join in his/her play	3.18	0.73	0.61
sc4	**Child plays harmoniously with others (e.g., gets along with peers, negotiates minor conflicts)**	3.14	0.75	0.60
sc5	**Child plays cooperatively with other children (e.g., plays as a team member)**	3.16	0.71	0.64
sc6	Following conflict, child eventually chooses to return to play with peers	2.91	0.78	0.34
sc7	During play, child shows concern for other players (e.g., shares toys, listens to other children's suggestions)	3.00	0.78	0.59
sc8	Child is appropriately affectionate with others during play (e.g., smiles at others, gives hugs or hi-fives, cheers for others)	3.13	0.77	0.63
sc9	**Other children choose to play with the child**	3.28	0.70	0.73
sc10	**Child freely joins others in play**	3.22	0.73	0.66
sc11	**Child helps others during play**	3.13	0.79	0.72

Note. Data are means and standard deviations from the Phase I Development sample, pre-residualization and R^2s (squared multiple correlation) from single-group confirmatory factor analysis (CFA) solutions. R^2 is the proportion of variance that the CFA model explains in each PJPS item. ae = Active Engagement; ic = Internal Control; joy = Joyfulness; sc = Social Connection. Items in **bold** are the 21 items that were returned to the field for Phase II data collection.

Table 2

Standardized Factor Loadings and Item Squared Multiple Correlations (R^2s) for the PJPS Four Factor Model across all Four Samples

		Factor Loadings				R^2			
		Phase 1		Phase 2		Phase 1		Phase 2	
	PJPS Items	Dev	Conf	Val	Conf	Dev	Conf	Val	Conf
ae4	Child engages in play without encouragement or praise	0.72	0.83	0.76	0.86	0.51	0.54	0.57	0.74
ae5	Child engages in play enthusiastically	0.79	0.81	0.91	0.88	0.63	0.66	0.82	0.77
ae8	Child moves freely and actively during play	0.78	0.65	0.82	0.81	0.60	0.42	0.67	0.66
ae9	Child finds lots of different play activities interesting, engaging	0.87	0.83	0.76	0.82	0.76	0.70	0.58	0.68
ae10	Child shows curiosity in play	0.80	0.74	0.78	0.75	0.64	0.55	0.61	0.55
ic4	When playing, child has an “I can do it” attitude	0.76	0.73	0.74	0.72	0.59	0.53	0.54	0.51
ic5	Child continues in challenging play even when feeling frustrated	0.75	0.63	0.65	0.69	0.57	0.40	0.42	0.48
ic6	Child takes initiative during play with others	0.88	0.90	0.80	0.88	0.78	0.81	0.64	0.77
ic7	Child shares ideas and suggestions during play	0.91	0.89	0.85	0.90	0.83	0.79	0.72	0.80
ic8	Child participates in play both as a leader and a follower	0.84	0.75	0.79	0.83	0.71	0.56	0.63	0.69
joy1	Child smiles often during play	0.83	0.72	0.66	0.78	0.69	0.52	0.44	0.61
joy2	Child celebrates his/her successes	0.82	0.66	0.76	0.81	0.68	0.43	0.57	0.65
joy3	Child laughs at silly or funny things during play	0.84	0.74	0.80	0.78	0.71	0.56	0.63	0.61
joy4	During play, child engages in silliness	0.80	0.75	0.68	0.64	0.63	0.54	0.47	0.41
joy5	Child enjoys music and dance activities	0.82	0.58	0.63	0.71	0.67	0.34	0.39	0.50
sc4	Child plays harmoniously with others	0.74	0.79	0.77	0.73	0.55	0.62	0.47	0.64
sc5	Child plays cooperatively with other children	0.76	0.85	0.69	0.80	0.58	0.73	0.59	0.54
sc9	Other children choose to play with the child	0.89	0.80	0.77	0.82	0.79	0.65	0.60	0.67
sc10	Child freely joins others in play	0.85	0.82	0.75	0.85	0.71	0.68	0.56	0.73
sc11	Child helps others during play	0.84	0.86	0.76	0.71	0.71	0.74	0.58	0.51

Note. Data are standardized factor loadings and R^2s of the 20 item PJPS from the four-factor CFA solutions. Item wording is shortened for the purpose of this table. For items in their entirety, see Table 1. Dev = Development sample; Val = Validation sample; Conf = Confirmation sample; ae = Active Engagement; ic = Internal Control; joy = Joyfulness; sc = Social Connection.

Table 3

Factor Inter-correlations for the PJPS Four-Factor Model Separately for the Phase I Development (n = 222) and Confirmation Samples (n = 222)

Phase I Development

	AE	IC	JOY	SC
AE	1.00			
IC	0.78	1.00		
JOY	0.85	0.70	1.00	
SC	0.68	0.66	0.75	1.00

Phase I Confirmation

	AE	IC	JOY	SC
AE	1.00			
IC	0.83	1.00		
JOY	0.74	0.57	1.00	
SC	0.67	0.72	0.65	1.00

Note. Below the diagonal for each sample are standardized factor inter-correlations (standardized ϕ coefficients) from the four-factor CFA solutions for each Phase I sample.

Phase Two

Phase II data collection was performed with a new, independent sample of teachers and children (*n*=120). Twenty teachers completed the refined 21-item version of the PJPS, an overall playfulness score, and the 23-item Children's Playfulness Scale.

Stage 0: Preliminary Data Treatment

Splitting data into the Validation and the Confirmation sample. The same procedure for creating the Validation and Confirmation samples was employed in Phase II as in Phase I. As before, the teacher pairs were divided into two groups, balancing for the following teacher-related variables: race, age, education level, and English-proficiency. T-tests and chi-square tests were run to examine the equivalence of the two samples with respect to all examined teacher variables: teacher age (*t*=.94, *p*=.36),

teacher ethnicity (χ^2=1.49, p=.83), teacher education (χ^2=.57, p=.75), and teacher English proficiency (χ^2=.09, p=.76). There were no significant differences between the two samples for the aforementioned variables. In the Phase II sample, only one male teacher participated in the research. The valid sample sizes were 120 for the Validation sample and 120 for the Confirmation sample.

Imputing missing data. As in Phase I, missing data were imputed using the PRELIS program in order to prevent the list-wise loss of data in LISREL. Across all items in both samples, 1.19% of cases were missing. Following the data imputation, the data were examined to assess any significant differences pre- and post- data imputation. For each item, mean scores varied by hundredths of a point, if at all, with the exception of the overall playfulness score which varied by 0.94 (pre-imputation M= 81.08 versus post-imputation M=80.14). No mean differences were significant. Standard deviations, kurtosis, and skewness for each item varied by hundredths of a point. Again, the overall playfulness item was the exception: skewness pre-imputation and post-imputation varied by tenths of a point and kurtosis before imputation measured 5.02 and after imputation measured 3.45. Still, it appears that the data imputation did not significantly vary the data for the purpose of these analyses.

Identifying and controlling for site and teacher effects. Replicating the procedure in Phase I, two sets of one-way ANOVAs were run for both the Validation and the Confirmation samples in order to evaluate the impact of teacher and school effects on the 45 items (21 PJPS items, 1 item assessing overall playfulness, and 23 Children's

Playfulness Scale (CPS) items). First, 45 one-way ANOVAs were conducted to identify any differences in the way that children were rated on the PJPS, overall playfulness, and the CPS due to the school the children attended. Almost all 45 items showed significant school differences at the 0.01 level in both the Validation and the Confirmation samples. Post-hoc tests revealed that all seven schools showed significant differences across the items. As before, because the schools had varying sample sizes, post-hoc Tukey tests with the Games Howell modification were run.

In order to control for school effects, the variance in each item (dependent variable) attributed to school differences was removed using multiple regression analyses. Six of the seven schools were dummy-coded and entered as independent variables into the multiple regression analysis. In the Validation sample, variance due to school effects ranged from 9.1% to 58.8% across the 45 items. The median r^2 across the 45 items was 0.26, M=0.27, SD=0.13. In the Confirmation sample, variance due to school effects ranged from 4.3% to 65.1%. The median R^2 across all items was 0.18, M=0.21, SD=0.11. Once variance due to school effects was removed, the unstandardized residual for each item was saved and used in the next set of analyses.

Forty-five one-way ANOVAs were run using the residualized data set. In the Validation sample, only eight items showed significant teacher differences at the 0.01 level. The post-hoc Tukey tests (with Games-Howell modification) revealed four teachers in the Validation sample who showed significant differences across multiple items. These four teachers were dummy-coded and entered as independent variables into the multiple

regression analysis. In the Validation sample, variance due to teacher effects ranged from 2.0% to 30.4% across the 45 items. The median R^2 across the 45 items was 0.11 (M=0.12, SD=.06). Once the residualizing process was complete, one-way ANOVAs revealed no significant school effects or teacher effects (at the p=0.10 level).

In the Confirmation sample, 12 items showed significant teacher differences at the 0.01 level. The post-hoc tests revealed four teachers in the Confirmation sample who showed significant differences across multiple items. Variance due to teacher effects ranged from 3.4% to 25.8% across all items. The median R^2 across all items was 0.13, M=0.14, SD=0.06. Post-residualizing, one-way ANOVAs showed no significant school effects or teacher effects (at the p=0.10 level). The new unstandardized residuals for both the Validation and Confirmation samples were then saved to be used in the CFA analyses.

Correlational analyses showed that the association between the unstandardized residuals (once both school and teacher effects had been controlled for) and the raw data was very strong in both the Validation sample [Pearson's r ranged from 0.63 to 0.95 (median=0.80, M=0.80, SD=0.08)] and the Confirmation sample [Pearson's r ranged from 0.51 to 0.94 (median=.84, M=0.82, SD=.08)]. The high correlations between the residualized and raw data sets indicated that the doubly-residualized data were appropriate for use in the CFA analysis.

Evaluating the psychometric properties of the items. To ensure that the distribution of the data was close enough to normal to allow for CFA analysis, skewness and kurtosis values were expected to fall between -2.00 and 2.00. Skewness across the 45

items ranged from -1.11 to +0.86 in the Validation sample and -1.18 to +0.52 in the Confirmation sample. Kurtosis in an item assessing overall playfulness was outside the acceptable range in both the Validation sample k=3.61, and the Confirmation sample k=2.35. Therefore the overall playfulness item was not included in the analysis. Kurtosis for the remaining 44 items ranged from -0.46 to +1.67 in the Validation sample and -0.78 to +2.15 in the Confirmation sample.

Stage I: Establishing Cross-Sample Generalizability of the PJPS Model

Though twenty-one items were returned to the field for Phase II, we decided to restrict each of the four factors to the same number of items in order to increase ease of use. Therefore the weakest item (with respect to R^2) in the Internal Control factor was removed so that twenty items, five per factor, remained in the PJPS. In order to assess the cross-sample generalizability of the twenty-item PJPS, we used robust MLE to impose the following models on the Phase II Validation data: a one-factor model (with all twenty items), a four-factor model (with five items per factor), and a 2nd order model. The same analyses were then conducted with the Confirmation data.

The one-factor solution provided a poor fit to the data and was easily ruled out: S-Bχ^2 (170, N= 120) = 463.11, minimum fit χ^2 = 534.36, RMSEA=0.120, CFI=0.94, α= 0.94. As in Phase I, the four-factor solution provided a significantly better fit than the one-factor solution, $\Delta\chi^2(6) = 145.46$, $p<.001$, and a strong fit with the data, S-Bχ^2 (164, N= 120) = 232.79, minimum fit χ^2= 303.84, RMSEA=0.06, CFI=0.99 with good internal consistency: Active Engagement ($\alpha = 0.90$), Internal Control ($\alpha = 0.87$), Joyfulness (α =

0.83), and Social Connection ($\alpha = 0.86$). Factor intercorrelations (standardized ϕ coefficients) ranged from moderate (0.54) to high (0.84), indicating that the factors share between 29% and 70% of their variance. Factor intercorrelations for both the Phase II Validation and Confirmation samples are shown in Table 4. We then tested a 2nd order CFA model (maintaining the four factors with a 2nd order factor of playfulness). The 2nd order CFA model also provided a good fit for the data: S-Bχ^2 (166, N= 120) = 233.38, minimum fit χ^2= 305.54, RMSEA=0.058, CFI=0.99. See Figure 3 for a visual representation of the 2nd order factor model for the Validation sample.

Similar results were found in the Confirmation sample. The four-factor model again provided an acceptable fit, S-Bχ^2 (164, N= 120) = 272.56, minimum fit χ^2= 396.90, RMSEA=0.075, CFI=0.98, with strong reliabilities: Active Engagement ($\alpha = 0.91$), Internal Control ($\alpha = 0.90$), Joyfulness ($\alpha = 0.86$), and Social Connection ($\alpha = 0.89$). As in the other three samples, the factors evidenced moderate to high intercorrelations with standardized ϕ coefficients ranging from 0.57 to 0.79. Factors therefore shared between 32% and 62% of their variance. See Table 4 for the factor correlation matrix. The 2nd order CFA model provided a good fit: S-Bχ^2 (166, N= 120) = 274.84, minimum fit χ^2 = 399.28, RMSEA=0.074, CFI=0.98. See Figure 4 for a visual representation of the 2nd order factor model for the Confirmation sample. As with the Validation sample, the one-factor model offered a weak fit to the data, S-Bχ^2 (170, N= 120) = 565.50, minimum fit χ^2 = 707.35, RMSEA=0.140, CFI=0.93, α= 0.95 and was significantly worse than the four-factor model, $\Delta\chi^2(6)=150.95$, $p<.001$.

We can conclude that the four-factor model and the 2nd order playfulness model fit well across both the Validation and Confirmation samples, in both Phase I and Phase II.

Stage II: Evaluating Convergent/Discriminant Validity of the PJPS Model

Factor intercorrelations. We examined the measure's convergent/discriminant validity through a series of scaled differences tests. First, we evaluated whether the associations between four factors within the PJPS differed in strength (Hypothesis IIa). The null hypothesis stated that the four PJPS factors would intercorrelate equally. Therefore, we compared two models in an omnibus test of homogeneity: 1) a CFA model in which the factor correlations were unconstrained and 2) a model in which the factor correlations were forced to be equal. Scaled differences $\Delta\chi^2$ tests suggested that, as anticipated, the correlations between the factors were significantly different from each other in both the Validation sample, $\Delta\chi^2(5) = 16.56$, $p=0.001$, and the Confirmation sample, $\Delta\chi^2(5) = 9.81$, $p=0.014$.

A subsequent series of scaled difference tests assessed which factor pairs correlated most strongly with each other. Hypothesis IIb posited that Active Engagement and Internal Control would correlate more strongly with each other than the other factors, and Social Connection and Joyfulness would correlate more strongly with each other than the other factors. Only factor pair correlations that demonstrated significant differences (at $p<.05$) across both samples (Validation and Confirmation) are described below. See Table 5 for the omnibus scaled difference $\Delta\chi^2$ tests and scaled difference $\Delta\chi^2$ tests for all

of the factor pairs. As expected, Active Engagement was significantly more correlated with Internal Connection than with Social Connection in both samples: Validation ($\Delta\chi^2(1) = 5.46$, $p=0.019$) and Confirmation ($\Delta\chi^2(1) = 4.59$, $p=0.032$). However, contrary to expectations, Joyfulness was also significantly more correlated with Internal Control than with Social Connection in both the Validation sample $\Delta\chi^2(1) = 11.86$, $p<0.001$ and the Confirmation sample $\Delta\chi^2(1) = 4.34$, $p=0.037$.

Factor correlations with the CPS. To further assess the construct validity of the PJPS, we evaluated the associations between the four PJPS factors and the CPS. Due to limitations of power, we were unable to evaluate these associations at the item level. Instead, we constructed a partial disaggregation CFA model in order to calculate the correlations between the CPS and the four PJPS factors. The benefit of using CFA to evaluate the correlational relationships between the factors is that CFA controls for measurement error in the subscales (Kline, 1998). Therefore, the comparison of the correlations is not clouded by error due to differences in the reliabilities of the individual factors. In order to create the partial disaggregation measurement model, it was necessary to average together multiple items for a particular factor to form an indicator. This process reduces the number of parameters that need to be estimated (and therefore addresses limitations in sample size). Further, model fit is improved because the process minimizes measurement error in items by aggregating the items into more reliable indicators (Bagozzi & Edwards, 1998; Bagozzi & Heatherton, 1994).

For the CPS, we parceled the twenty-three items into two separate indictors by taking average scores on the split halves. The split-half reliabilities indicated that the CPS parcels were appropriate for CFA modeling in the Validation sample, first half (α= 0.84), second half (α= 0.82), correlation between both halves (r=0.76) and the Confirmation sample, first half (α= 0.90), second half (α= 0.85), correlation between both halves (r=0.73). The split-half reliability for the CPS in the Confirmation sample was also strong enough to allow for CFA modeling: first half (α= 0.90), second half (α= 0.85), correlation between both halves (r=0.73). The five items in each of the four PJPS factors were entered as composite indices.

As hypothesized (Hypothesis IIc), all four PJPS factors correlated strongly with the CPS in the Validation sample. The standardized ϕ coefficients (in descending order of strength) were as follows: Internal Control (0.95), Active Engagement (0.89), Joyfulness (0.85), and Social Connection (0.72). In the Confirmation sample, the strong correlations between the PJPS factors and the CPS were replicated and are presented in descending order of strength: Active Engagement (ϕ = 0.84), Internal Control (ϕ = 0.81), Joyfulness (ϕ = 0.77), and Social Connection (ϕ = 0.78). Table 4 provides the factor correlations with the CPS in both the Validation and Confirmation samples. Consistent with expectations, a child's internal control, active engagement, joyfulness, and social connection in play are strongly related to his/her overall playfulness.

In a test of divergence, we tested a series of factor correlations to assess, as hypothesized (Hypothesis IId), whether the associations between the CPS and the four

PJPS factors differed in strength. In order to determine whether correlations between the four factors and the CPS were different we compared an unconstrained model to a model with equality constraints (all four PJPS factors were forced to correlate equally with the CPS). As hypothesized, in the Validation sample, the PJPS factors did not correlate equally with the CPS, $\Delta\chi^2(3) = 33.10$, $p=0.002$. Further analyses evaluated each of six PJPS factor pairs in order to determine which factor evidenced the strongest correlation with the CPS by comparing 1) a model in which one pair of factors is forced to correlate more strongly with the CPS than the other two to 2) the unconstrained model. Though it was hypothesized that Joyfulness and Social Connection would correlate most strongly with the CPS (Hypothesis IIe), Internal Control and Social Connection, $\Delta\chi^2(1) = 17.84$, $p<0.001$, Active Engagement and Social Connection, $\Delta\chi^2(1) = 7.74$, $p=0.005$, and Internal Control and Joyfulness, $\Delta\chi^2(1) = 8.09$, $p=0.019$ correlated most strongly with the CPS in the Validation sample. In the Confirmation sample, however, the hypothesized differences in the correlations between the four factors and the CPS were not significant, $\Delta\chi^2(3) = 2.55$, $p=0.486$.

Inter-Rater Reliability

Inter-rater reliability was assessed in both Phase I and Phase II. Teacher reports were significantly correlated at the item-level, factor-level, and across total score in both Phase I and Phase II. However, Phase I reliability was noticeably lower than inter-rater reliability in Phase II. In Phase I, at the item level, Pearson *r* averaged 0.32 and ranged

from 0.18 to 0.47 for the final list of twenty items. Teacher reports correlated moderately for Active Engagement (r=0.45, p<.01), Internal Control (r=0.36, p<.01), Joyfulness (r=0.36, p<.01), Social Connection (r=0.41, p<.01), and PJPS total score (r=0.44, p<.01).

In Phase II, at the item level, Pearson r averaged 0.48 and ranged from 0.34 to 0.58. Factor-level inter-rater reliability was higher: Active Engagement (r=0.63, p<.01), Internal Control (r=0.61, p<.01), Joyfulness (r=0.57, p<.01), and Social Connection (r=0.63, p<.01). Teacher reports correlated significantly on the PJPS total score as well (r=0.68, p<.01).

The impact of teacher demographics on playfulness ratings was also assessed. There were no significant main effects of teacher age, teacher ethnicity, or teacher's ESL status on playfulness ratings across Phase I and Phase II. However, in Phase I, mean ratings of playfulness (total score) for male teachers (M= 66.43, SD=10.63) was significantly higher than mean ratings for female teachers (M=62.60, SD= 11.15; t=2.36, p=0.019). A main effect for teacher gender was not investigated in Phase II because only one male teacher participated in the second phase of data collection.

An analysis of variance showed that the highest level of education completed by teachers also evidenced a main effect on mean ratings of playfulness in both Phase I F(3,400)=3.94, p=0.009, and Phase II, F(2,224)=3.21, p=0.04. In Phase I, post-hoc analyses using the Scheffé test revealed that mean rating of playfulness by teachers with a Bachelor's degree (M=66.08, SD=9.85) was significantly higher than mean rating by teachers with an Associate's degree (M=61.62, SD=11.19), F(3,400)=4.47, p=0.01. In

Phase II, post-hoc analyses using the Scheffé test did not reveal any mean differences significant at the p<.05 level.

Exploring Demographic Differences on the PJPS

Identifying consistent patterns across samples. While a critical analysis of demographic differences in the PJPS is an important direction for future research on the measure, some preliminary exploration of demographic differences was undertaken in Phase I and Phase II. Significant differences in the four PJPS factors that persisted across samples (Development/Validation, Confirmation, Phase I/Phase II) are reported here. These analyses were conducted with the doubly residualized data (controlling for school and teacher effects).

Gender. To evaluate gender differences on the four PJPS factors, we ran a series of independent sample t-tests. No results held up across all four samples. However, it is important to note that mean scores for boys were lower than for girls on most items in Phase I (in both the Development and Confirmation samples). Both Internal Control and Social Connection showed significant gender differences (p<.01) across both samples in Phase I: Internal Control, Development [girls (*M*=0.13, *SD*=0.67), boys (*M*=-0.13, *SD*=0.61), *t*(219)=-3.04, *p*=0.003] and Confirmation [girls (*M*=0.10, *SD*=0.64), boys (*M*=-0.12, *SD*=0.57), *t*(219)=-2.67, *p*=0.008]; Social Connection, Development [girls (*M*=0.13, *SD*=0.51), boys (*M*=-0.13, *SD*=0.57), *t*(219)=-3.50, *p*<0.001] and Confirmation [girls (*M*=0.09, *SD*=0.51), boys (*M*=-0.01, *SD*=0.60), *t*(219)=-2.55, *p*=0.012].

Gender differences on the overall PJPS score (sum of scores) were also evaluated. Significant differences were found in both the Development [girls (M=2.43, SD=9.95), boys (M=-2.47, SD=9.98), t(219)=-3.66, p<0.001] and Confirmation [girls (M=1.59, SD=9.22), boys (M=-1.76, SD=9.05), t(219)=-2.72, p=0.007] samples in Phase I. In both Phase I samples, boys consistently scored lower than girls on the four factors and the PJPS as a whole. However, these results were not replicated in Phase II. The magnitude of the mean difference in total PJPS scores between boys and girls was greater in the Phase I samples (absolute difference ranged from 3.35 to 4.91) than in the Phase II samples (absolute difference ranged from 0.47 to 2.13). See Table 6 for means, standard deviations, and t-values for boys versus girls across all four samples.

Age. The impact of child's age on the scoring of the PJPS was assessed using a linear regression that employed age as a continuous variable. The age of participating children was recorded in months. Linear regression analyses revealed that age was a significant predictor of Active Engagement, Internal Control, and Social Connection scores in at least three of the four data sets (at p<.05). Scores on the three PJPS factors increased with age (with age accounting for 1.6% to 14.4% of the variance across the four data samples). Joyfulness, however, did not evidence significant age differences at the p<.01 level in any of the four samples. PJPS total scores also evidenced significant age differences (p<.05 across all four samples). The R^2 values ranged from 0.04 to 0.14 across the four samples. Regression results are reported in Table 7.

Table 4

Factor Intercorrelations for the PJPS Four-Factor Model Separately for the Phase II Validation (n =120) and Confirmation Samples (n =120)

Phase II Validation

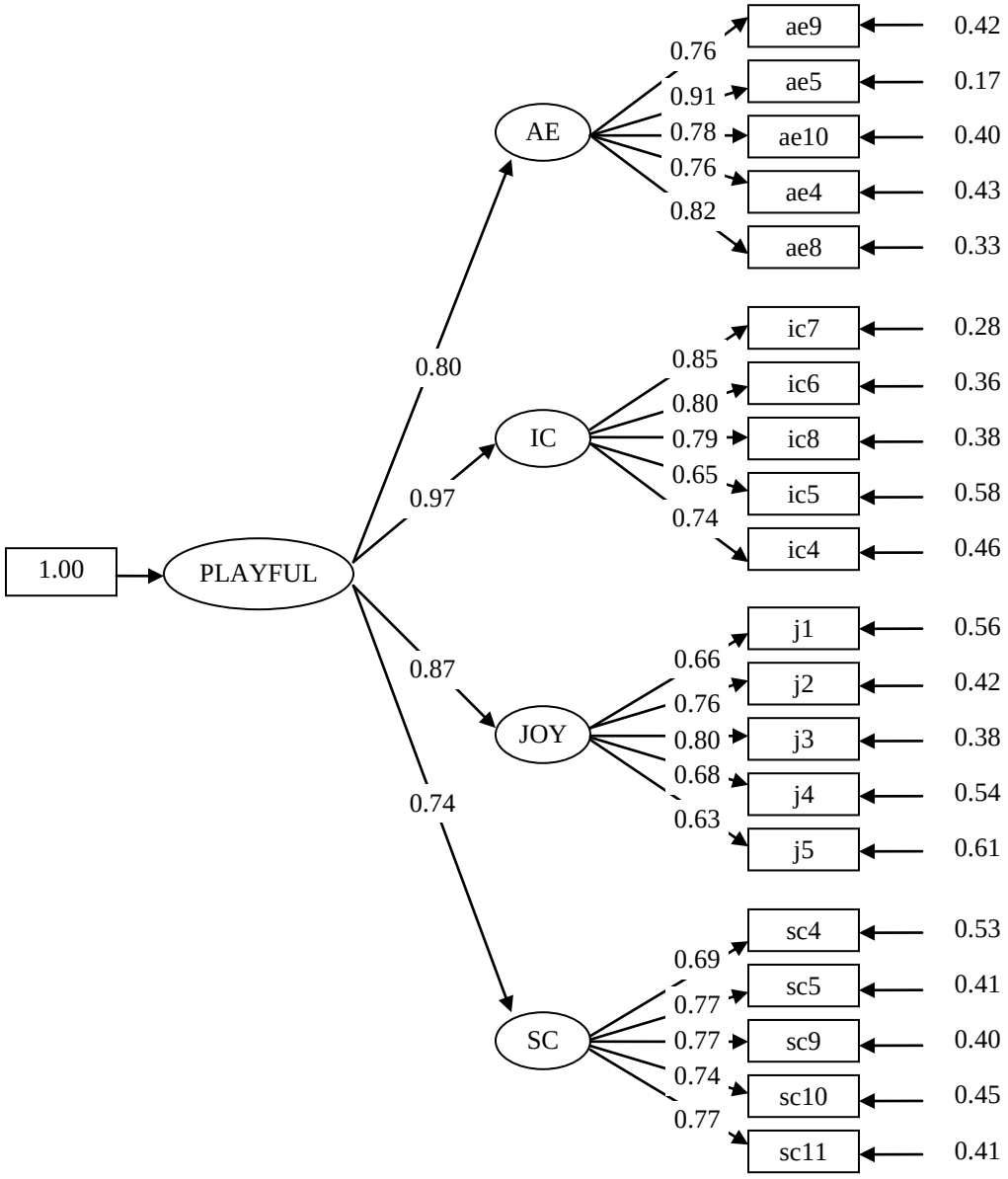
	AE	IC	JOY	SC
AE	1.00			
IC	0.78	1.00		
JOY	0.72	0.84	1.00	
SC	0.54	0.73	0.66	1.00
CPS	0.89	0.95	0.85	0.72

Phase II Confirmation

	AE	IC	JOY	SC
AE	1.00			
IC	0.79	1.00		
JOY	0.74	0.78	1.00	
SC	0.68	0.63	0.57	1.00
CPS	0.84	0.81	0.77	0.78

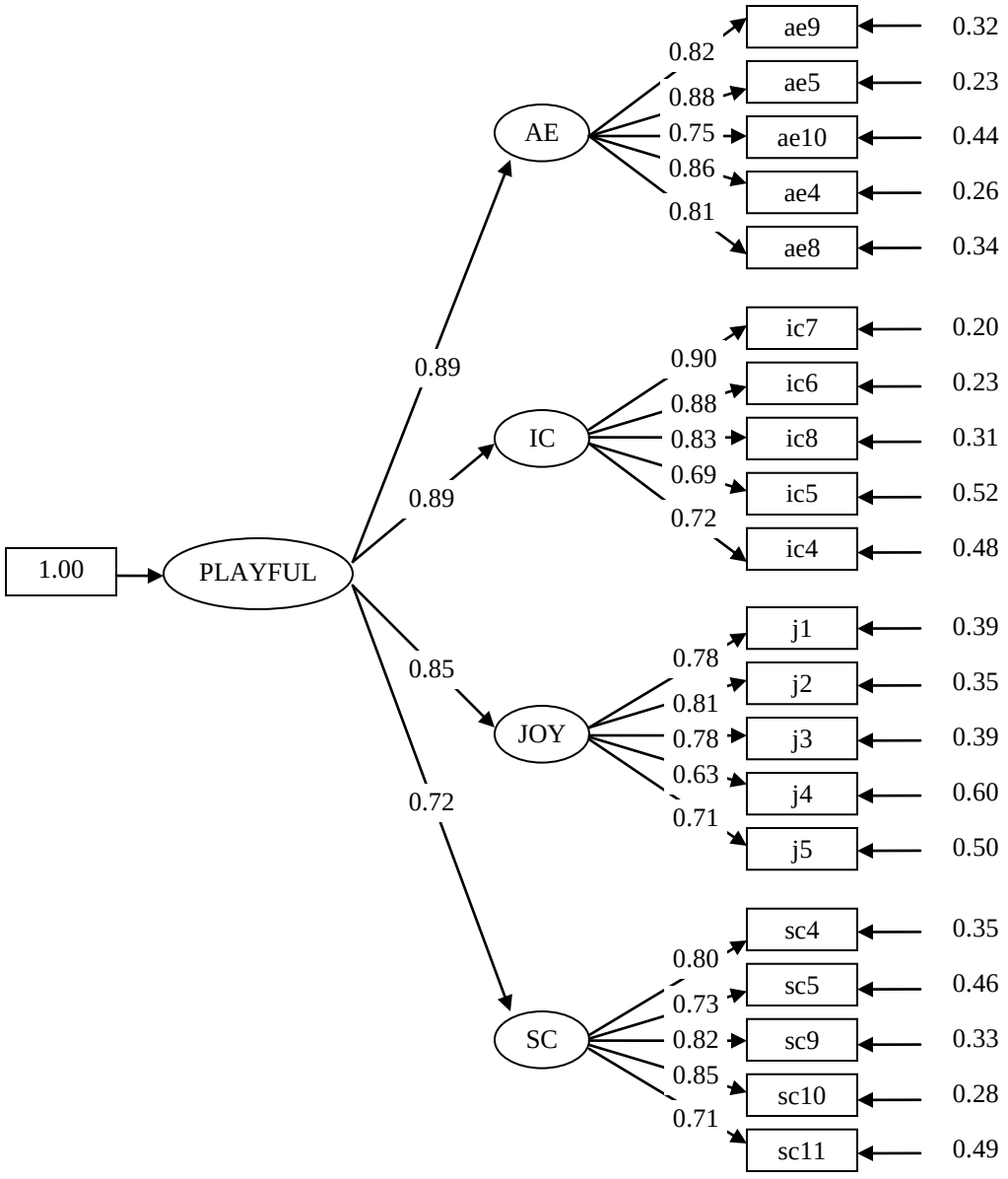
Note. Below the diagonal for each sample are standardized factor intercorrelations (standardized ϕ coefficients) from the four-factor CFA solutions for each Phase I sample. The bottom line shows the factor correlations (standardized ϕ coefficients) with the Children's Playfulness Scale (CPS). AE = Active Engagement; IC = Internal Control; JOY = Joyfulness; SC = Social Connection.

Figure 3. 2nd Order factor model for Phase II Validation sample



Note. Arrows between the 2nd order factor (PLAYFUL) and the four factors (AE, IC, JOY, SC) present gamma coefficients. Gamma coefficients represent the linear relationship between the variables (similar to a regression coefficient). Standardized factor loadings are presented to the left of each item and measurement error terms are presented to the right of each item.

Figure 4. 2nd Order factor model for the Phase II Confirmation sample



Note. Arrows between the 2nd order factor (PLAYFUL) and the four factors (AE, IC, JOY, SC) present gamma coefficients. Gamma coefficients represent the linear relationship between the variables (similar to a regression coefficient). Standardized factor loadings are presented to the left of each item and measurement error terms are presented to the right of each item.

Table 5

Phase II Scaled Difference χ^2 Tests for PJPS Factor Intercorrelations (Hypotheses IIa & IIb)

	Satorra-Bentler χ^2 Tests Unconstrained Model		Satorra-Bentler χ^2 Tests With Equality Constraints		Scaled Difference $\Delta\chi^2$ test	
Comparison	Val	Conf	Val	Conf	Val	Conf
Omnibus Test	248.35 (df=169)	282.32 (df=169)	232.79 (df=164)	272.56 (df=164)	16.56*** (df=5)	9.81* (df=5)
AE-IC vs. AE-JOY	232.79	272.56	234.33	272.33	1.18	0.53
AE-IC vs. AE-SC	232.79	272.56	242.43	274.77	5.46*	4.59*
AE-JOY vs. AE-SC	232.79	272.56	236.28	274.32	10.90***	1.25
JOY-AE vs. JOY-IC	232.79	272.56	236.95	273.23	1.98	0.36
JOY-AE vs. JOY-SC	232.79	272.56	233.53	276.28	0.59	3.46
JOY-IC vs. JOY-SC	232.79	272.56	242.18	278.74	11.86***	4.34*
SC-AE vs. SC-IC	232.79	272.56	237.09	272.84	4.62*	0.57
SC-AE vs. SC-JOY	232.79	272.56	232.95	272.84	1.26	1.98
SC-IC vs. SC-JOY	232.79	272.56	234.66	272.70	1.65	0.51
IC-AE vs. IC-JOY	232.79	272.56	233.07	272.90	0.44	0.03
IC-AE vs. IC-SC	232.79	272.56	233.36	275.19	0.47	3.85*
IC-JOY vs. IC-SC	232.79	272.56	236.13	277.01	2.37	3.15

Note. Data are Sattora-Bentler χ^2 values for the unconstrained model and for the model with equality constraints as well as the results for the scaled difference χ^2 tests. The Omnibus Test compared 1) a four-factor model without constraints to 2) a four-factor model with equality constraints. Factor pair comparisons with significant scaled difference $\Delta\chi^2$ tests across both samples are in bold. Degrees of freedom (df) for the factor pair comparisons are x for the unconstrained model, and x for the model with equality constraints, and 1 for the scaled difference χ^2 Tests.
*p<.05 **p<.01 ***p<.001

Table 6. *Means, Standard Deviations, and Independent Samples T Tests for Boys and Girls*

	Phase 1						Phase 2					
	Dev			Conf			Val			Conf		
	BOY (n=105)	GIRL (n=116)	*T* (df)	BOY (n=105)	GIRL (n=116)	*T* (df)	BOY (n=56)	GIRL (n=64)	*T* (df)	BOY (n=56)	GIRL (n=64)	*t* (df)
AE	-0.07 (0.50)	0.07 (0.56)	-1.95† (219)	-0.09 (0.52)	0.08 (0.53)	-2.26* (219)	-0.01 (0.48)	0.00 (0.59)	-0.09 (118)	-0.08 (0.64)	0.07 (0.65)	-1.25 (118)
IC	-0.14 (0.61)	0.13 (0.67)	-3.04** (219)	-0.12 (0.57)	0.10 (0.64)	-2.66** (219)	-0.02 (0.70)	0.02 (0.65)	-0.30 (118)	-0.07 (0.67)	0.06 (0.68)	-1.07 (118)
JOY	-0.14 (0.60)	0.15 (0.54)	-3.83*** (219)	-0.05 (0.46)	0.05 (0.47)	-1.64 (219)	-0.01 (0.58)	0.00 (0.54)	-0.09 (118)	0.026 (0.52)	-0.02 (0.54)	0.50 (118)
SC	-0.13 (0.57)	0.13 (0.51)	-3.50*** (219)	-0.10 (0.60)	0.09 (0.51)	-2.55* (219)	-0.02 (0.58)	0.02 (0.48)	-0.40 (118)	-0.11 (0.63)	0.09 (0.58)	-1.77† (118)
PJPS	-2.47 (9.98)	2.43 (9.95)	-3.66*** (219)	-1.76 (9.05)	1.59 (9.22)	-2.72** (219)	-0.25 (10.20)	0.22 (9.44)	-0.26 (118)	-1.14 (10.25)	0.10 (10.56)	-1.12 (118)

Note. Residualized data (controlling for both school and teacher effects) were used in these analyses. Standard deviations are presented in parentheses under means. Degrees of freedom (df) are presented in parentheses under t value. N=220 for both Development and Confirmation samples in Phase I. N=120 for both Validation and Confirmation samples in Phase II. AE = Active Engagement; IC = Internal Control; JOY = Joyfulness; SC = Social Connection; PJPS = Project Joy Playfulness Scale (overall score).

† p< .10 *p<.05 **p<.01 ***p<.001

Table 7

Regression Summary Table: Main Effects of Age on Individual Factor Scores and Total Score across all Four Samples

	Phase 1						Phase 2					
	Dev			Conf			Val			Conf		
	B	SE B	B	B	SE B	β	B	SE B	β	B	SE B	β
AE	0.02	0.004	0.24***	0.02	0.004	0.25***	0.01	0.007	0.13	0.03	0.009	0.28**
IC	0.02	0.005	0.28***	0.02	0.004	0.30***	0.02	0.009	0.23*	0.04	0.009	0.38***
JOY	0.01	0.004	0.14*	0.00	0.004	0.06	0.01	0.007	0.07	0.02	0.007	0.23*
SC	0.01	0.004	0.19**	0.01	0.004	0.19**	0.02	0.007	0.26**	0.03	0.008	0.37***
PJPS	0.285	0.076	0.25***	0.26	0.069	0.25***	0.27	0.126	0.21*	0.57	0.137	0.38***

Note. Residualized data (controlling for both school and teacher effects) were used in these analyses. N= 219 for each Phase I sample (Development and Confirmation); N=106 for each Phase II sample (Validation and Confirmation); Dev = Development sample; Val = Validation sample; Conf = Confirmation sample; AE = Active Engagement; IC = Internal Control; JOY = Joyfulness; SC = Social Connection; PJPS = Project Joy Playfulness Scale (total sum score).
*p<.05 **p<.01 ***p<.001

CHAPTER FOUR

DISCUSSION

Review of Findings

These results provide preliminary evidence that the PJPS is a reliable and valid teacher-report measure of playfulness in preschool-age children. As hypothesized, the findings indicate that playfulness is a multidimensional construct with four correlated, but independent, factors: Active Engagement, Internal Control, Joyfulness, and Social Connection. Further, the variance shared by these first-order factors reflects a higher-order factor of playfulness. That is, the data are best represented by the four factor model and the correlations between the factors are strong enough to support a second-order factor of playfulness.

Through a collaborative process that merged clinical expertise with the academic literature, the PJPS items were generated, edited, and selected for evaluation with significant input from experienced preschool teachers as well as academic and clinical experts in related fields, such as early childhood education and trauma psychology. Then, in the initial steps of Phase I, the proposed PJPS items were narrowed to the final set of 20 items. Because the data in both Phase I and Phase II were split into two samples (Development/Validation and Confirmation), there were multiple opportunities for testing the generalizability of the measure. First in Phase I, the 20-item four-factor structure established in the Development sample was confirmed in a partially

independent Confirmation sample (same children, different raters). In Phase II, the 20-item four-factor model was confirmed with a new sample of preschool children in the Validation sample and again in the Confirmation sample, providing ample cross-sample generalizability. Further, Phase II provided preliminary evidence of both convergent and discriminant validity. As anticipated, PJPS factor scores demonstrated strong positive correlations with a criterion measure of playfulness, the Children's Playfulness Scale (CPS). Discriminant validity was evidenced in the ways in which the factors differentially correlated with each other. The implications of key findings, particularly the four-factor model and convergent/discriminant validity, as well as inter-rater reliability and demographic differences are discussed below.

The four factor model. Drawing from the previous inter-disciplinary research literature and significant clinical expertise, four factors representing cognitive-behavioral (Active Engagement and Internal Control) and socio-emotional dimensions (Social Connection and Joyfulness) of playfulness were developed and proposed. As different expressions of the same construct (playfulness), it was assumed that the four factors would correlate highly with each other but remain distinct. As predicted, the four factors evidenced high correlations across all four samples but were not redundant. Despite these high correlations, the one-factor model was not supported and the four-factor model was consistently the best fit for the data.

These findings suggest that a child's capacity for play manifests in distinct ways, and at a given point in time, children may excel in one area of playfulness (e.g., being

joyful) and demonstrate difficulty in another (e.g., being actively engaged). It is easy to imagine a child who is new to preschool engaging actively in the play activities, expressing joy and delight, and maintaining internal control during play but refraining from engagement with other children due to shyness. While this child may still demonstrate his playfulness through high scores on the Active Engagement, Internal Control, and Joyfulness subscales his score on Social Connection may be lower. A low score on one or more factors does not necessarily indicate a deficit in the child but it does suggest that the child's full potential for play is not being realized in a particular context.

The operational definitions of the four factors (within the preschool age group) can be illuminated at the item-level. A high score on Active Engagement describes a child who is observed engaging in play independently, without adult coaxing or extrinsic motivation; playing with passion and gusto; being curious and inquisitive during play; moving freely and comfortably in play; and extending this passion and curiosity to several different types of activities. A high score on Internal Control is illustrated by a child who perseveres in challenging play even when feeling frustrated; who takes initiative when playing with others; who switches roles comfortably (e.g. from leader to follower); and who demonstrates an "I can do it" attitude. Joyfulness refers to a child who openly expresses positive emotion during play: a child who smiles often, celebrates successes exuberantly (e.g., jumping for joy), laughs at silly things and engages in silliness, and enjoys music and dance. Finally, Social Connection refers to a child who plays cooperatively, as a team member; who plays harmoniously, working to get along

with peers; who joins in others' play comfortably; readily helps others; and is sought by other children for play.

In their theoretical conceptualization of play, Krasnor and Pepler (1980) emphasized that play episodes were more easily defined as play depending on the number of play criteria met (e.g., intrinsic motivation, flexibility, positive affect). Similarly, the extent to which a child embodies the four factors of playfulness determines how playful she is rated in a given time period, and at a given time point. In fact, one could argue that play is not only most 'play-like' but also most beneficial (with respect to learning and exploration as well as socio-emotional well-being) when the child is actively engaged, joyful, internally controlled, and social connected during the play episode.

Factor intercorrelations. Convergent and discriminant validity in Phase II were evidenced in the way in which the four factors differentially correlated with each other. As expected, all four factors demonstrated moderate to strong intercorrelations. Further, it was hypothesized that the two factors that make up the cognitive-behavioral dimension (Active Engagement and Internal Control) and the two factors that compose the socio-emotional dimension (Social Connection and Joyfulness) would be highly correlated to each other. Instead, Joyfulness and Active Engagement were each more closely related to Internal Control than to Social Connection ($p<.05$). Joyfulness and Active Engagement capture positive emotions of joy and interest. Decades of research have supported the theory that positive affect broadens one's repertoire of thoughts and actions (Frederickson, 2001). More specifically, there is empirical evidence suggesting that

positive emotions promotes more flexible, creative, open-minded, and efficient thought patterns, as well as increased attention (Isen, 2000). Experiencing positive emotion, individuals are more likely to engage in adaptive problem-solving behavior and exhibit greater self-control.

Further, it is possible that the sense of competence captured by the Internal Control items underlies the child's joyfulness, and the child's ability to enthusiastically engage in play. That is, the child's perceived competence, a general confidence in one's ability and sense of worth, could act as a prerequisite for unfettered and joyful engagement in play. On the other hand, a lack of self-efficacy (for example, helplessness in the face of trauma) could undo a child's capacity for active, joyful play. The theoretical definition of the Internal Control domain refers to the child's sense of safety, along with competence. While none of the Internal Control items specifically reference safety, the feeling of safety is understood as a necessary component of competence and worth. Returning to the trauma literature, clinical evidence suggests that perpetual fear (e.g., the inability to trust in the safety of your surroundings) can undo a child's playfulness (Cooper, 2000; Macy et al., 2003; Osofsky, 1995; Garbarino et al., 1992). Therefore, one might conclude that feeling safe and able is an essential ingredient in joyful, engaged play.

Though all of the factors demonstrated significant positive correlations, the weaker associations between Active Engagement and Social Connection and Joyfulness and Social Connection (relative to their associations to Internal Control) may be

attributed to the fact that not all play is socially-oriented. While teachers were asked to rate the child over a two-week period, it is possible that teachers may reference a particular play episode as they complete the rating scale.

Factor correlations with the CPS. Contrary to expectations, the correlations between each individual factor and the CPS were not significantly different across both samples (Validation and Confirmation) in Phase II. Three of the five CPS content areas emphasized manifest joy, sense of humor, and social spontaneity. Therefore it was hypothesized that Joyfulness and Social Connection would correlate more strongly with the CPS than the Active Engagement and Internal Control factors due to the overlap in content. However, the lack of differentiation between factor correlations could provide further evidence that each of the four PJPS factors contribute to the overall construct of playfulness. As noted earlier, the covariance between the four factors was strong enough to support a higher-order factor of playfulness (the second order model). Similarly, the four factors may each explain a unique portion of the variance in an overall measure of playfulness (the CPS).

Inter-rater reliability. Though the PJPS evidenced a strong factor structure, internal consistency, convergent and discriminant validity across multiple samples, there were some limitations regarding inter-rater reliability. In Phase I, correlations between teacher ratings, at the factor level, fell between 0.36 and 0.45; the overall scale demonstrated inter-rater reliability of 0.44. This modest rate of agreement was not

replicated. In Phase II, factor-level correlations between teacher ratings ranged from 0.57 to 0.63 and the overall PJPS demonstrated inter-rater reliability of 0.68.

Lower-levels of cross-informant agreement have been widely documented, particularly in relation to behavioral ratings of children. Meta-analytic results from the seminal article by Achenbach, McConaughy, and Howell (1987) suggest that pairs of similar informants (e.g., two teachers) show a mean Pearson *r* of 0.60 and a lower mean *r* of 0.28 between two different types of raters (parent and teacher) (Achenbach et al., 1987). A more recent study of cross-informant agreement between parents and teachers rating the behavioral problems of preschool-aged children found similar results (Gross, Fogg, Garvey, & Julion, 2004).

The explanation for this lack of cross-informant convergence is manifold. Low rates of cross-informant agreement can suggest potential problems with a measure's reliability. However, if the measure demonstrates other forms of reliability (e.g., internal consistency, test-retest), it is likely that there are other justifications for the low agreement rates. First, differences between parents and teachers often point to situational specificity: children's behavior varies across contexts (Achenbach et al., 1987). Even in the same classroom, context can vary depending on the teacher-child relationship or the time of day (for example). Second, informant bias may influence the way in which the same child in the same context (e.g., the classroom) is rated. A teacher's background, years of experience, level of education, and personal interaction with the child may impact their judgment of that child (Gross et al., 2004).

Because lower rates of inter-rater reliability were found in Phase I and not in Phase II, it is important to evaluate any differences between the groups of teachers participating in each phase. First, the ethnic breakdown of the teachers in Phase I versus Phase II is significantly different ($p<.01$). In Phase I, over 50% of the participating teachers were Latino, whereas in Phase II, the ethnicity of the participating teachers was more evenly spread between ethnic groups (e.g., African American, Latino, and White). It is possible that cultural differences in attitudes towards playfulness may have contributed to differences in the way that teachers perceived the participating children or interpreted the individual PJPS items. There were no significant differences between Phase I and Phase II with respect to teacher education levels, gender, and English as a Second Language (ESL).

In this study, though overall teacher demographics were balanced in the two samples (Development/Validation versus Confirmation) for each phase of data collection, the pairs of teachers (that provided two ratings on the same child) were often characterized by demographic differences. For example, in Phase I, 25% (5 in 20) of the teacher pairs were male-female whereas only 10% of the teacher pairs (1 in 10) were male-female in Phase II. In Phase I, male teachers on average rated children's playfulness significantly higher than female teachers ($p<.05$).[11] Recent research has pointed to a similar discrepancy between male and female preschool teachers: an interview study found that male teachers are rated as more 'playful' in the classroom than female teachers

[11] Mean differences in overall playfulness ratings between male and female teachers were not calculated in Phase II because there was only one male teacher (n=20 teachers in total).

and that female teachers value “calm play” above more boisterous play (Sandberg & Pramling-Samuelsson, 2005).

In addition, pairs of teachers in Phases I and II evidenced differences in levels of education and years of experience. These demographic differences are mirrored in preschools around the country, where classrooms often include a lead teacher and a more junior teacher. In both Phase I and II, there were significant differences between mean teacher ratings of playfulness based on the teacher’s level of education. More specifically, teachers who had finished college rated children higher on playfulness, on average, than did teachers who had a high-school diploma. Therefore, the current study provides some preliminary evidence that specifically teacher gender and the educational level of the teacher may impact teacher ratings of playfulness. Further research is required to investigate how demographic differences impact ratings of playfulness and attitudes towards playfulness. It would be particularly useful to measure attitudes towards playfulness, in addition to collecting significant demographic data, alongside ratings of the PJPS.

Demographic differences in playfulness. The PJPS items were designed to be applicable across play types and play content in order to mitigate gender effects as much as possible. Still, preliminary analyses in Phase I of gender differences in the measure revealed that girls generally were rated more positively than boys at the item-, factor-, and total score-level. However, these results were not replicated in Phase II. Reduced sensitivity to mean differences due to a smaller sample size could explain why gender

differences were non-significant in Phase II. However, the mean difference between boys and girls in Phase II was also much smaller, suggesting that teachers in Phase I rated boys and girls more differentially than teachers in Phase II. Currently, there is a dearth of research regarding gender differences in playfulness. It will therefore be important to parse observable gender differences in children's playfulness from artifacts of teacher bias (e.g., do teachers interpret girls' playfulness differently from boys' playfulness?).

Revealing potential developmental shifts in playfulness during the preschool age, age differences were consistent across samples. Interestingly, age served as a significant predictor of Active Engagement, Internal Control, and Social Connection as well as playfulness overall. That is, age (within the preschool range) and playfulness were positively correlated. Children's active engagement in play may increase with age as they increase their capacity for independent play (e.g., engaging in play without encouragement or praise) and broaden their play repertoire (e.g., finding lots of different activities interesting an engaging). Increases with age in Internal Control may reflect developmental changes in a child's ability to regulate emotions (e.g., manage frustration when engaging in challenging play) and to direct play with others (e.g., share ideas and suggestions during play) (Posner & Rothbart, 2000). Similarly, the effect of age on Social Connection replicates the developmental shift towards more social play, and children's increased social competence over time (e.g., playing harmoniously and cooperatively with other children) (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major, & Queenan, 2003; Howes & Matheson, 1992). Interestingly, Joyfulness did not evidence

age differences at the factor- or item-level. These results suggest that children do not increase or decrease their expressions of joy (e.g., smiling during play, laughing at silly things, celebrating successes) as they age from three to five. However, it would be useful to examine how outward expressions of joy during play change, and perhaps reduce, as children move from preschool to school age.

Limitations and Future Research Directions

The limitations of the current study were often due to a relatively small sample size. For example, neither the Phase I nor the Phase II samples provided enough power to conduct a fine-tuned analysis of how the four-factor structure of the PJPS works in boys versus girls or at different ages using CFA. This type of CFA analysis would be particularly useful for a more thorough understanding of the nature of any gender and age effects on playfulness. Further, the preliminary findings of the current study indicate that future research should investigate whether norm scores should be different for boys versus girls.

Cross-cultural research on play suggests that culture can mediate meaning-making and context of preschoolers' play (Haight et al., 1999; Farver & Shin, 1997). Unfortunately, small sample size and uneven sampling also prevented an investigation of the impact of ethnicity and culture on playfulness. In Phase I and Phase II, the samples included a significant percentage of Asian, Black, Latino, and White children. However, neither of the samples was effectively balanced for ethnicity in order to allow for between-group comparisons. Further, in Phase I, the ethnic and socio-economic makeup

of each school was different. Therefore, by removing effects due to school in preparation for CFA, it is possible that effects due to ethnicity and income were inadvertently attenuated. In the future, it is important to carefully assess whether preschool effects are confounded by cultural differences. Both the cultural backgrounds of the teacher raters as well as the participating children could influence playfulness ratings. The sample of participating teachers in both Phase I and Phase II was also racially diverse but the sample size did not provide enough power for between-group comparison. Systematic research that evaluates both the culture of the children being rated and the culture of the rater could reveal whether the PJPS is sensitive to cross-cultural differences in playfulness and the interpretation of playfulness by raters. Further, cross-cultural and internationally-focused research could identify whether the construct of playfulness, and the PJPS, need to be adapted for different cultures.

During its development, the PJPS was founded on several theoretical tenets. One key assumption underlying the current construct of playfulness is that playfulness (as measured by the PJPS) is context-dependent, versus a stable personality trait. While it was important to outline the theoretical underpinnings of the measure in its development, the scope of the current study did not permit an evaluation of the impact of context on a child's playfulness. In his unified biopsychosocial theory of development, Sameroff (2010) recommends the recognition of a child's placement "in networks of relationships that constrain or encourage different aspects of individual behavior." While transactional models of development suggest that it would be difficult to tease apart the individual

contributions of each environmental and internal variable, it is important to identify those contextual variables that work to limit or to nurture playfulness in young children. Several environmental variables, from a macro-perspective (e.g., levels of community safety) to a micro-perspective (e.g., characteristics of the play space and available play props) need to be considered in future research. Two key environmental variables are touched on below.

A child's socioeconomic status, due to the increased risk for chronic stressors and adverse life events, may constrict a child's playfulness (McLoyd, 1998). The current study focused primarily on children whose families reported annual household incomes of less than $30,000. Therefore valid comparisons between children from different income levels were not feasible. Future studies assessing the PJPS should evaluate its generalizability to higher-income samples in addition to exploring differences in playfulness across income brackets.

Research has also revealed the importance of high-quality childcare in nurturing children's playfulness (Howes & Stewart, 1987; Howes & Matheson, 1992). Participants in the current study were recruited from Head Start classrooms, a private childcare center, and a cooperative nursery school in and around Boston, MA. Because the majority of children came from Head Start programs, the current study did not evaluate the effect of childcare type (or quality) on ratings of playfulness. Research measuring children's playfulness alongside childcare quality (and other childcare-related variables) would be useful in better understanding the ways in which childcare impacts children's play.

Finally, the current study established preliminary construct validity by comparing the PJPS with another validated measure of playfulness (CPS). However, future research is needed to provide a more thorough assessment of validity by contrasting the PJPS with other hypothetically related measures (e.g., positive peer play, social and emotional competence) and measures that are conceptually distinct from playfulness. Further, the current study evaluated convergent and discriminant validity with another teacher-report measure. Future research comparing the PJPS with measures from multiple sources (e.g., direct observation of play, parent-report) in addition to teacher-report is important for establishing the measure's validity. Finally, test-retest should be conducted in future research in order to better understand the measure's sensitivity to change.

Implications

The PJPS fills a number of gaps in the limited playfulness literature. First, it is currently the only scale that measures playfulness as a multidimensional construct. The two other validated playfulness scales, the ToP (Bundy, 2000) and the CPS (Barnett, 1990; 1991), represent the construct of playfulness unidimensionally and provide a total overall score. In contrast, the PJPS renders individual factor scores (e.g., Active Engagement, Joyfulness, Internal Conrol, Social Connection) in addition to an overall playfulness score. Multiple scores create a profile of playfulness for each child, highlighting the child's play strengths and weaknesses in a particular setting. Second, unlike measures that use play as a window onto child development, the PJPS items attempt to capture capacity for play (e.g., "Child laughs at silly or funny things during

play"), rather than specific play skills (e.g. "Child tells funny stories") or play types. Because cultural differences in play manifest in play types, content, and the emphasis on certain play skills, the exclusion of these aspects of play should theoretically increase the measure's cross-cultural generalizability. Third, the PJPS uniquely blended academic and clinical expertise in its collaborative development. Clinical experts on preschool play were involved in each aspect of the measure's development and validation, from its inception. Further, comprehensive qualitative feedback from preschool teachers significantly influenced item selection and item wording. The infusion of 'on-the-ground' clinical expertise should increase the measure's relevance and functionality. Fourth, the simple format, brevity, and clear language (e.g., including parenthetical statements to explicate the behavioral expression of some items) should augment the usability of the PJPS in preschool settings. Finally, the PJPS is a playfulness measure specifically designed as a teacher-report measure targeting preschool-aged children in a preschool setting.

Implications for theory and research. The preliminary validation of the four-factor model suggests that Internal Control, Active Engagement, Social Connection and Joyfulness are each a separate but related component of the overall definition of playfulness. Just as earlier researchers (e.g, Krasnor & Pepler, 1980; Rubin et al., 1983) proposed multiple dispositional criteria for discerning play from 'not play,' the four factors of the PJPS are integral parts of a child's capacity for play. One could argue that when children are able to tap fully into these four different elements of playfulness, that

is, the more they are actively engaged, internally controlled, socially connected, and joyful, the more beneficial their play becomes. When children are fully and freely engaged in play, their play is transformative: they learn new things, develop emotional and social competencies, feel connected to their communities, and experience empowerment. Therefore, the four-factor structure may serve as a useful paradigm for identifying the key ingredients in transformative play.

The introduction of the PJPS is well-timed. Internationally, as well as within the United States, a child's right to play is continually challenged by war, community violence, child labor, and poverty. However, even in the best of circumstances (in well-resourced and safe communities), play is under threat. Despite the clear links between play and healthy child development, time for free, child-driven play is decreasing (Elkind, 2007; Pellegrini & Bohn, 2005). The American Academy of Pediatrics (AAP) states that a family's hurried lifestyle and the increased emphasis on academic instruction versus 'well-rounded' education may prevent children from fully benefiting from the developmental opportunities afforded by play (Ginsburg et al., 2007). The AAP highlight the following factors in the reduction of free, child-driven play: 1) children spend more time in childcare than at home where free play opportunities abound, 2) the 'professionalization' of parenthood in which parents feel compelled to schedule extra-curricular opportunities, 3) the pressure of the college admissions process, 4) recently imposed limits on recess during the school day in favor of more academic time, and 5) the ubiquity of passive entertainment (such as TV and Internet) (Ginsburg et al., 2007).

In the second half of the 20th century, the aforementioned factors have conspired to limit and change children's play (Paley, 2004; Elkind, 2007; Chudacoff, 2007). However, the past decade has witnessed a sea-change in both the academic literature and the popular media. Academic and professional organizations such as the American Academy for Pediatrics (Ginsburg et al., 2007) and the American Psychological Association (Winerman, 2009) have heralded the importance of preserving free play in the lives of children. In 2008, a New York Times Magazine cover story highlighted the value of developing a more scientific understanding of play (Henig, 2008). The general consensus amongst child-focused academics as well as teachers and clinicians, that time for play is dwindling from both children's daily routine and preschool/kindergarten curricula, is mirrored in parents as well. In a recent study of 2,400 mothers in 16 countries across five continents, mothers of young children reported that a reduction in free play time was wearing away their children's experience of childhood (Singer, Singer, D'Agostino, & Delong, 2009).

This renewed focus on play underscores the importance of understanding how play opportunities impact children and their development. The PJPS has the potential to open new avenues of research on child's capacity for play. Revisiting Cooper's (2000) theory that a child's playfulness is influenced by the immediate play environment and surrounding cultural/familial factors, one might ask how a child's play environment fosters opportunities for transformative play. Applying the four-factor framework,

researchers could evaluate how varying contexts support or detract from active, joyful, empowering, socially connected play.

Future research could also investigate connections between playfulness and other key developmental outcomes (e.g., social competence, school readiness, self-regulation). Elucidating potential links between playfulness and positive socio-emotional outcomes, academic outcomes, and even health outcomes (e.g., obesity) may inject useful empirical evidence into discussions of the importance of play, and the supremacy of academics over play (and vice versa). Further developing our understanding of how engagement in play impacts cognitive, as well as socio-emotional performance, may help educators and policymakers determine the most efficacious balance of play and academics in the classroom.

If a child's playfulness is indeed linked to his ability to get along with peers, maintain focus in the classroom, or regulate his emotions, it will be important to discover ways to nurture playfulness across multiple settings. In the preschool setting, key empirical questions include how the type and quality of childcare, teacher-child relationships, and teacher's own playfulness impact a child's playfulness. On a community-level, it would be particularly useful to understand how poverty rates, levels of community violence, and access to safe, open play space influence playfulness in neighborhood children. Trauma research has consistently identified differences in the play of trauma-exposed children (Findling et al., 2006; Cooper, 2000; Osofsky, 1995; Macy et al., 2003). Children exposed to trauma may engage in play that is more

constricted, repetitive, or reminiscent of the traumatic event (Scheeringa et al., 1995). The PJPS provides researchers with a tool to evaluate quantitatively the way in which trauma changes a child's capacity for play. Further, researchers can use the PJPS as an outcome measure to document the effects of play-based intervention, particularly with children whose playfulness has been dampened by trauma. For example, how does an intervention restore children's playful capacity?

Clinical implications. Having reviewed some possible theoretical and empirical applications of the PJPS, it is important to highlight its potential uses in the preschool classroom. First, the most obvious use is to collect individual profiles of playfulness for each child in the classroom. Teachers can track their students' progress over the course of the school year by filling out the PJPS every few months, comparing the students' scores over time. The individual playfulness profiles are a simple and easy-to-use tool for identifying a child's particular strengths and areas for growth in the classroom context (with respect to their engagement in play).

The National Association of the Education of Young Children, the body responsible for accrediting early childhood education programs, lists assessment as one of its ten basic standards for accreditation. Preschools seeking accreditation are strongly encouraged to develop and maintain systematic assessment of their students' progress in order to effectively communicate with families and to highlights areas in need of intervention. Particularly in play-based preschools, it is difficult to find outcome measures that assess precisely what the preschool aims to foster (e.g., engagement in

play). The brief and simple format of the PJPS provides preschool teachers with a quick way to capture children's playfulness in the classroom. Due to modest levels of inter-rater reliability, multi-axial assessment (as endorsed by Achenbach (1992)) is recommended. That is, employing teacher ratings on the PJPS in conjunction with another form of measurement (e.g., parent report, direct observation) would provide a more accurate picture of playfulness.

Second, preschool teachers invested in building a classroom conducive to play could use the measure to assess the classroom overall. Aggregating the children's scores, teachers could develop a classroom profile with respect to the four factors allowing them to identify areas of strength and areas for improvement in the classroom. For example, in a classroom of students who score highly, overall, on Active Engagement and Joyfulness, but show a low score on Social Connection, the classroom teacher could plan activities that promote social connectedness, sense of community, and cooperation.

A measure like the Test of Environmental Supportiveness (TOES) (Bundy, 1999) that evaluates the extent to which caregivers, the play space, and the sensory environment support or limit play could be useful for evaluating the play strengths and weaknesses of the classroom environment. Blending data on the classroom environment's supportiveness for play and the group of students' overall playfulness would allow teachers to identify classroom assets and deficits, and then design modifications to the classroom and plan interventions with the children accordingly.

Perhaps an even greater promise of the PJPS is its potential influence on the way in which teachers conceptualize play in the classroom. Teachers invested in nurturing the playfulness of their students could use the four-factor framework as they plan their daily classroom routines, activities, and lessons: Are the children able to actively engage in the activity? Does the activity facilitate a sense of safety and create opportunities for mastery? Is the activity enjoyable? Does it provide children with the opportunity to connect with something/someone outside of themselves? The four-factor model provides teachers (as well as parents and other early childhood professionals) with a concise method for evaluating how effectively an activity lends itself to healthy play. For example, parents who want to ensure that their children's involvement in an extracurricular activity provides ample opportunity for play, might ask the aforementioned questions in order to determine the right program for a particular child.

To date, the conversation about academics and play in the preschool/kindergarten classroom has tended to conceptualize academics and play as mutually exclusive both in research and in practice. Yet play is often an essential vehicle for learning, particularly as the young child uses explores the surrounding world and how it works. In contrast with Piaget's (1971) conceptual separation of play activities from learning activities, research linking play with health brain development (Bjorklund & Pellegrini, 2000; Frost, 1998) and the development of cognitive skills (e.g., Diamond et al., 2007) suggests that play and learning may not be so easily distinguished from each other. In fact, a theory in which play and learning are integrated as mutually supportive suggests that the two

constructs be conceptualized as "indivisible" (Pramling-Samuelsson & Johansson, 2006). In practice, if teachers approach play and learning as one (rather than two separate activities, with two separate goals), their teaching may be more effective, particularly in promoting a lifelong love of learning. Imbuing academically-oriented activities with the four components of playfulness (e.g., ensuring that the activities include opportunities to be actively engaged, socially connected, joyful, and empowered) may render a powerful combination in which children learn content and skills while simultaneously building connection to others, developing self-esteem, and having fun.

In conclusion, the PJPS has the potential to support further theoretical exploration of the construct of playfulness. This new measure creates new opportunities for research on playfulness as an outcome measure, investigating relationships between playfulness and other key outcomes, and examining the impact of environmental variables on a child's playfulness. In the preschool classroom, the PJPS's brief format provides teachers with a new tool for evaluating their students (or their overall classroom) on the extent to which their natural capacity for play is being expressed in the classroom and monitoring their progress over time. Finally, the four-factor model offers teachers a new framework for talking about and designing activities to nurture play in the classroom and beyond.

APPENDIX A

RECRUITMENT MATERIALS

Information for Teachers about the Project Joy Playfulness Study (Phase I)

What is the project about?
Project Joy and Loyola University Chicago are partnering to develop a new measure of playfulness for preschool teachers to use in their classrooms. Our new measure will be:

1) an easy-to-use assessment tool for teachers
2) a tool for measuring each student's overall playfulness… and particular strengths and weaknesses (regarding social connectedness, joy, active engagement, and internal control)
3) a useful method for tracking students' progress over the course of the year

Toward the development of this measure, we are asking top preschools and preschool teachers in the area to help us.

Who can participate?
Preschool teachers teaching in classrooms with children between the ages of 3 and 5 are invited to participate in this project. A minimum of two teachers in each classroom must participate in order for the classroom to be a part of the project.

What do I need to do?

- If you are interested in participating in this study, review and sign the consent form

- Help Project Joy staff members collect parental consent forms from the parents in your classroom

- Complete the Project Joy Playfulness Scale (PJPS) on each participating child* (the Project Joy Playfulness Scale has forty questions regarding a child's social connection, joyfulness, active engagement in play, and internal control). Each PJPS should take approximately 5 minutes to complete.

A gift for participating
We know that you are very busy and that participating in this project will take some extra time! Therefore, to show our appreciation for your time, you will receive a gift of Life is Good® products.

For more information
Please feel free to contact Steven Gross at 617.620.9706 or Rebecca Cornelli Sanderson at 773.505.3604.

Information for Teachers about the Project Joy Playfulness Study (PHASE TWO)

What is the project about?
Project Joy and Loyola University Chicago are partnering to develop a new measure of playfulness for preschool teachers to use in their classrooms. Our new measure will be:

1) an easy-to-use assessment tool for teachers
2) a tool for measuring each student's overall playfulness… and particular strengths and weaknesses (regarding social connectedness, joy, active engagement, and internal control)
3) a useful method for tracking students' progress over the course of the year

Toward the development of this measure, we are asking top preschools and preschool teachers in the area to help us.

Who can participate?
Preschool teachers teaching in classrooms with children between the ages of 3 and 5 are invited to participate in this project. A minimum of two teachers in each classroom must participate in order for the classroom to be a part of the project.

What do I need to do?

- If you are interested in participating in this study, review and sign the consent form

- Help Project Joy staff members collect parental consent forms from the parents in your classroom

- Complete the Project Joy Playfulness Scale (PJPS) and the Children's Playfulness Scale (CPS) on each participating child* (the Project Joy Playfulness Scale has twenty questions regarding a child's social connection, joyfulness, active engagement in play, and internal control and the Children's Playfulness Scale has twenty-three questions about a child's playfulness). Filling out the PJPS and the CPS for each child should take approximately 5 minutes to complete.

A gift for participating
We know that you are very busy and that participating in this project will take some extra time! Therefore, to show our appreciation for your time, you will receive a gift of Life is Good® products.

For more information
Please feel free to contact Jesse Howes at 617.833.8692 or Rebecca Cornelli Sanderson at 773.505.3604.

Template for Letter to Parents (Phase I)

Dear Parent,

XXXX School is partnering with Project Joy and Loyola University Chicago in a research project to develop a new playfulness questionnaire for preschool children. The playfulness questionnaire is designed to be completed by classroom teachers.

This project asks teachers to complete the playfulness questionnaire on children whose parents decide to participate. Your child will not need to do anything in order to participate in this project. Whether or not you decide to allow your child to participate, his/her experience at preschool will in no way be affected.

If you decide that you would like your child to participate, please do the following:

1) Read and sign the Parental Consent form (attached)

2) Complete the Family Information Sheet.

3) Return the Family Information Sheet and the Parental Consent form to your child's classroom teacher.

If you have any questions, please do not hesitate to speak to your child's classroom teacher, the director of XXXX school, or call the Project Coordinator, Rebecca Cornelli Sanderson at 773.505.3604. Your child's classroom teacher has copies of the playfulness questionnaire if you would like to review it.

Thank you for your time!

Sincerely,

Rebecca Cornelli Sanderson, MA

Sample Collaboration Letter for Participating Preschools

[SCHOOL LETTERHEAD]

Rebecca Cornelli Sanderson, MA, MSc
Department of Psychology
Loyola University Chicago
6525 North Sheridan Road
Chicago, Illinois 60626

Dear Mrs. Sanderson:

As the director of [PRESCHOOL NAME], I agree to offer my cooperation in your evaluation of a new measure of playfulness that will include students and teachers from [SCHOOL NAME]. I understand that the goal of this project is to assess the reliability and validity of this new teacher-report measure. This new measure of playfulness will provide a starting point for a comprehensive research program, allowing a) Project Joy to evaluate the efficacy of a play-based intervention, b) preschool teachers to rate their preschoolers' level of playfulness and adjust classroom practice as needed to enhance playfulness, and c) researchers to evaluate the contextual effects on a child's playfulness and the link between playfulness and positive child development.

Participating teachers will complete the playfulness measure on participating students who are enrolled at our school and who are between 3 and 5 years old. Student participation simply requires that the child is observed during the regular school day by his/her teacher. Each participating family will be asked to complete a brief family demographic form.

Two teachers in each eligible classroom will be asked to participate. If they are interested in participating in the project, they will complete a consent form. Participating teachers will receive XXX as compensation for their time and effort. A teacher's decision regarding participation in the project will in no way affect his/her experience at the center. Consent forms and information about the project will be sent home to parents in participating classrooms. Children whose parents have signed and returned a parental consent form and a family demographic form will be eligible to participate. A family's decision whether or not to participate will in no way affect their child's experience at school.

I am pleased to support a project that will aid in the development of an important new measure of playfulness. I extend my support for your project with our cooperation and full participation.

Sincerely,
[NAME]
[TITLE]

APPENDIX B

CONSENT AND DEMOGRAPHIC FORMS

CONSENT TO PARTICIPATE IN RESEARCH

(Parental Consent – Phase I)

Project Title: The Project Joy Playfulness Scale: Reliability and Validity Phase I
Researcher: Rebecca Cornelli Sanderson, MA
Faculty Sponsor: Maryse Richards, Ph.D.

Introduction:
You are being asked to give permission for your child to take part in a research study being conducted by Rebecca Cornelli Sanderson for a doctoral dissertation under the supervision of Dr. Maryse Richards in the Department of Psychology at Loyola University of Chicago.

Your child is being asked to participate because your child is between the ages of three and five and attends one of the preschools participating in this study. Approximately three hundred children will participate in this study.

Please read this form carefully and ask any questions you may have before deciding whether to allow your child to participate in the study.

Purpose:
The purpose of this study is to develop a playfulness questionnaire, the Project Joy Playfulness Scale, for preschool children.

Procedures:
If you agree to allow your child to be in the study, his/her classroom teacher will complete the Project Joy Playfulness Scale (PJPS) about your child. The PJPS has forty questions that the teacher will answer about your child's play (e.g., how much they enjoy playing with other children or how willing they are to try new activities). Your child will not be asked to do anything in order to participate in this study. Finally, you will be asked to complete a brief family demographic form.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There are no direct benefits to your child from participation, but this research will help to develop a playfulness questionnaire that could be used by preschool teachers in their classrooms, as well as in research.

Confidentiality:
All data will be kept confidential. Each participating child will be assigned an ID number so no names or identifying information (e.g., birth date) will appear on the questionnaire. The family demographic form and this parental consent form will be filed separately from the questionnaire. The name of your child's preschool will not be disclosed in any published reports. Further, in any future publications, all data will be presented in aggregate form, with no identifying information.

Voluntary Participation:
Participation in this study is voluntary. If you do not want your child to be in this study, he/she does not have to participate. Even if you decide to allow your child to participate, he/she is free not to answer any question or to withdraw from participation at any time without penalty. Your decision to allow, or not allow, your child to participate will have no affect on your child's preschool experience.

Contacts and Questions:
If you have questions about this research study, please feel free to contact Rebecca Cornelli Sanderson at (773) 505-3604 or the faculty sponsor, Dr. Maryse Richards, at (773) 508-3015.

If you have questions about your child's rights as a research participant, you may contact the Compliance Manager in Loyola's Office of Research Services at (773) 508-2689.

Statement of Consent:
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to allow your child to participate in this research study**.** You will be given a copy of this form to keep for your records.

_____ _____

Parent's/Guardian's Signature **Date**

_____ _____

Researcher's Signature **Date**

CONSENT TO PARTICIPATE IN RESEARCH

(Parental Consent – Phase II)

Project Title: The Project Joy Playfulness Scale: Reliability and Validity Phase II
Researcher: Rebecca Cornelli Sanderson, MA
Faculty Sponsor: Maryse Richards, Ph.D.

Introduction:
You are being asked to give permission for your child to take part in a research study being conducted by Rebecca Cornelli Sanderson for a doctoral dissertation under the supervision of Dr. Maryse Richards in the Department of Psychology at Loyola University of Chicago.

Your child is being asked to participate because your child is between the ages of three and five and attends one of the preschools participating in this study. Approximately one hundred and sixty children will participate in this study.

Please read this form carefully and ask any questions you may have before deciding whether to allow your child to participate in the study.

Purpose:
The purpose of this study is to develop a playfulness questionnaire, the Project Joy Playfulness Scale, for preschool children.

Procedures:
If you agree to allow your child to be in the study, his/her classroom teacher will complete the Project Joy Playfulness Scale (PJPS) and the Children's Playfulness Scale (CPS) about your child. The PJPS has twenty questions and the CPS has twenty-three questions that the teacher will answer about your child's play (e.g., how much they enjoy playing with other children or how willing they are to try new activities). Your child will not be asked to do anything in order to participate in this study. Finally, you will be asked to complete a brief family demographic form.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There are no direct benefits to your child from participation, but this research will help to develop a playfulness questionnaire that could be used by preschool teachers in their classrooms, as well as in research.

Confidentiality:
All data will be kept confidential. Each participating child will be assigned an ID number so no names or identifying information (e.g., birth date) will appear on the questionnaires. The family demographic form and this parental consent form will be filed separately from the questionnaires. The name of your child's preschool will not be disclosed in any published reports. Further, in any future publications, all data will be presented in aggregate form, with no identifying information.

Voluntary Participation:
Participation in this study is voluntary. If you do not want your child to be in this study, he/she does not have to participate. Even if you decide to allow your child to participate, he/she is free not to answer any question or to withdraw from participation at any time without penalty. Your decision to allow, or not allow, your child to participate will have no affect on your child's preschool experience.

Contacts and Questions:
If you have questions about this research study, please feel free to contact Rebecca Cornelli Sanderson at (773) 505-3604 or the faculty sponsor, Dr. Maryse Richards, at (773) 508-3015.

If you have questions about your child's rights as a research participant, you may contact the Compliance Manager in Loyola's Office of Research Services at (773) 508-2689.

Statement of Consent:
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to allow your child to participate in this research study**.** You will be given a copy of this form to keep for your records.

_____ _____

Parent's/Guardian's Signature **Date**

_____ _____

Researcher's Signature **Date**

CONSENTIMIENTO DE PARTICIPAR EN INVESTIGACIÓN
(Consentimiento Parental – Parental Consent in Spanish, Phase I)

Título de Proyecto: La Escala del Juego del Proyecto Júbilo: Fiabilidad y Validez Fase Una
Investigadora: Rebecca Cornelli Sanderson, M.A.
Consejera Universitaria: Maryse Richards, Ph.D.

Introducción:
Pedimos su permiso para la participación de su niño/a en ésta investigación cerca de Rebecca Cornelli Sanderson para una disertación con la inspección de Dr. Maryse Richards en el Departamento de Psicología a la Universidad Loyola de Chicago.

Pedimos la participación de su niño/a porque su niño/a está entre los edades de tres y cinco y asiste uno de los preescolares que están participando en ésta investigación.

Por favor, lea ésta forma con cuidado y haga las preguntas que tiene antes de decidiendo ya sea que permite o no la participación de su niño/a en la investigación.

Objeto:
El objeto de ésta investigación es el desarrollo de un cuestionario del juego, la Escala del Juego del Proyecto Júbilo, para niños en preescolar.

Procedimientos:
Si usted está en acuerdo con permitiendo la participación de su niño/a en la investigación, la maestra de su niño/a va a completar la Escala del Juego de Proyecto Júbilo acerca de su niño/a. La Escala tiene cuarenta preguntas que la maestra va a contestar acerca del juego de su niño/a (por ejemplo, cuanto su niño/a disfruta de jugar con ortos niños o cuanto complaciente tiene en probando actividades nuevas). No vamos a preguntarle a hacer nada a su niño/a para su participación en ésta investigación. Finalmente, vamos a pedir su completamiento de una forma breve de las demografias de su familia.

Riesgos y Beneficios:
No hay riesgos en participando en ésta investigación mas que los riesgos que los niños experimentan en la vida de todos los días.

No hay beneficios directos a su niño/a desde su participación, pero ésta investigación va a ayudar el desarrollo de un cuestionario del juego que las maestras preescolares pueden usar en sus clases y también en investigación.

Privacidad:
Todos los datos serán confidencial. Vamos a asignar un número de identificación a cada niño/a que participa así no nombres o información identificado (por ejemplo, su día de nacimiento) van a aprecer en el cuestionario. La forma de las demografias de su familia y ésta forma de consentimiento parental serán separado del cuestionario. El nombre del preescolar de su niño/a no va a ser discrubido en ninguna reporte publicado. Adicional, en cualquieras publicaciónes del futuro, todos los datos serán presentados en forma agregado, con no información identificado.

Participación Voluntaria:
Participación en ésta investigación está voluntaria. Si no quiere que su niño/a participa en ésta investigación, ello/a no necesita participar. Aunque decide permitir su niño/a a participar, ello/a está libre a no contestar a alguna pregunta o retirarse de participación a alguno tiemp sin castigo. Su decisión a permitir o no permitir la participación de su niño/a no va a afectar la experiencia de su niño/a en preescolar.

Contactos y Preguntas:
Si tiene preguntas acerca de ésta investigación, por favor llámase por teléfono a Rebecca Cornelli Sanderson a 773-505-3604 o la consejera universitaria, Dr. Maryse Richards a 773-508-3015.

Si tiene preguntas acerca de los derechos de su niño/a como un participante en ésta investigación, puede llamar por teléfono al Administrador de Conformidad en la Oficina Loyola de Servicios de Investigación a 773-508-2689.

Declaración de Consentimiento:
Su firma abajo indica que ha leido y aprendido la información proveido arriba, ha tenido la oportunidad de hacer preguntas, y está en acuerdo con permitiendo la participación de su niño/a en ésta investigación. Vamos a darle a usted una copia de ésta forma para guardar en sus registros.

_____ _____

Firma de Guardián Fecha

_____ _____

Firma de Investigador/a Fecha

CONSENT TO PARTICIPATE IN RESEARCH

(Teacher Consent Phase I)

Project Title: The Project Joy Playfulness Scale: Reliability and Validity Phase I
Researcher: Rebecca Cornelli Sanderson, MA
Faculty Sponsor: Maryse Richards, Ph.D.

Introduction:

You are being asked to take part in a research study being conducted by Rebecca Cornelli Sanderson for a doctoral dissertation under the supervision of Dr. Maryse Richards in the Department of Psychology at Loyola University of Chicago.

You are being asked to participate because you are a preschool teacher in a classroom with children between the ages of three and five.

Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:
The purpose of this study is to develop a playfulness questionnaire, the Project Joy Playfulness Scale (PJPS), for preschool children. This new questionnaire is designed for preschool teachers to complete on the students in their classrooms.

Procedures:
If you agree to be in the study, you will be asked to complete a PJPS questionnaire for each participating student in your classroom. Preschool students can only participate if they have a signed consent form from their parents. The PJPS has forty questions that you will answer about your student's play (e.g., how much they enjoy playing with other children or how willing they are to try new activities). You will be asked to complete a PJPS for each participating student in your classroom. Each PJPS should take approximately 5 minutes to complete.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There are no direct benefits to you from participation, but this research will help to develop a playfulness questionnaire that could be used by preschool teachers in their classrooms, as well as in research.

Compensation:
As a token of appreciation for your time and effort, you will receive a set of Life is Good® products (e.g., sweatshirt, travel mug).

Confidentiality:
All data will be kept confidential. Each participating child will be assigned an ID number so no names or identifying information (e.g., birth date) will appear on the questionnaires. You will also be assigned an ID number to use on each PJPS that you complete instead of your name. This consent form will be filed separately from the questionnaires you complete. The name of your preschool will not be disclosed in any published reports. Further, in any future publications, all data will be presented in aggregate form, with no identifying information.

Voluntary Participation:
Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free not to answer any question or to withdraw from participation at any time without penalty. Your decision to participate or not will have no affect on your relationship with Project Joy.

Contacts and Questions:
If you have questions about this research study, please feel free to contact Rebecca Cornelli Sanderson at (773) 505-3604 or the faculty sponsor, Dr. Maryse Richards, at (773) 508-3015.

If you have questions about your child's rights as a research participant, you may contact the Compliance Manager in Loyola's Office of Research Services at (773) 508-2689.

Statement of Consent:
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to participate in this research study**.** You will be given a copy of this form to keep for your records.

_____ _____

Participant's Signature **Date**

_____ _____

Researcher's Signature **Date**

CONSENT TO PARTICIPATE IN RESEARCH

(Teacher Consent – Phase II)

Project Title: The Project Joy Playfulness Scale: Reliability and Validity Phase II
Researcher: Rebecca Cornelli Sanderson, MA
Faculty Sponsor: Maryse Richards, Ph.D.

Introduction:

You are being asked to take part in a research study being conducted by Rebecca Cornelli Sanderson for a doctoral dissertation under the supervision of Dr. Maryse Richards in the Department of Psychology at Loyola University of Chicago.

You are being asked to participate because you are a preschool teacher in a classroom with children between the ages of three and five.

Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:
The purpose of this study is to develop a playfulness questionnaire, the Project Joy Playfulness Scale (PJPS), for preschool children. This new questionnaire is designed for preschool teachers to complete on the students in their classrooms.

Procedures:
If you agree to be in the study, you will be asked to complete a Project Joy Playfulness Scale (PJPS) and a Children's Playfulness Scale (CPS) for each participating student in your classroom. Preschool students can only participate if they have a signed consent form from their parents. The PJPS has twenty questions and the CPS has twenty-three questions that you will answer about your student's play (e.g., how much they enjoy playing with other children or how willing they are to try new activities). You will be asked to complete a PJPS and a CPS for each participating student in your classroom. Each questionnaire should take approximately 5 minutes to complete.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There are no direct benefits to you from participation, but this research will help to develop a playfulness questionnaire that could be used by preschool teachers in their classrooms, as well as in research.

Compensation:
As a token of appreciation for your time and effort, you will receive a set of Life is Good® products (e.g., sweatshirt, travel mug).

Confidentiality:
All data will be kept confidential. Each participating child will be assigned an ID number so no names or identifying information (e.g., birth date) will appear on the questionnaires. You will also be assigned an ID number to use on each PJPS that you complete instead of your name. This consent form will be filed separately from the questionnaires you complete. The name of your preschool will not be disclosed in any published reports. Further, in any future publications, all data will be presented in aggregate form, with no identifying information.

Voluntary Participation:
Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free not to answer any question or to withdraw from participation at any time without penalty. Your decision to participate or not will have no affect on your relationship with Project Joy.

Contacts and Questions:
If you have questions about this research study, please feel free to contact Rebecca Cornelli Sanderson at (773) 505-3604 or the faculty sponsor, Dr. Maryse Richards, at (773) 508-3015.

If you have questions about your child's rights as a research participant, you may contact the Compliance Manager in Loyola's Office of Research Services at (773) 508-2689.

Statement of Consent:
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to participate in this research study**.** You will be given a copy of this form to keep for your records.

_____ _____

Participant's Signature **Date**

_____ _____

Researcher's Signature **Date**

FAMILY INFORMATION FORM

Today's date: _____

Your child's name: _____
(First) (Last)

Your child's birth date: ____/____/____
(Day, Month, Year)

Your child's gender: **BOY** **GIRL**

Your child's ethnicity:
- ☐ **American Indian/Alaskan Native**
- ☐ **Asian**
- ☐ **Black**
- ☐ **Hispanic/Latino**
- ☐ **Native Hawaiian/Other Pacific Islander**
- ☐ **White non-Hispanic**

Your family's yearly household income (before tax):
- ☐ **Less than $10,000**
- ☐ **$10,000-$19,999**
- ☐ **$20,000-$29,999**
- ☐ **$30,000-$39,999**
- ☐ **$40,000-$49,999**
- ☐ **$50,000-$59,999**
- ☐ **$60,000-$69,999**
- ☐ **$70,000-$79,999**
- ☐ **$80,000-$89,999**
- ☐ **$90,000-$99,999**
- ☐ **$100,000-$149,999**
- ☐ **$150,000-$200,000**

TEACHER INFORMATION FORM

Today's date: _____

Your name: _____
(First) (Last)

Your birth date: _____/____/_____
(Day, Month, Year)

Your gender: **MALE** **FEMALE**

Your ethnicity:

- ☐ **American Indian/Alaskan Native**
- ☐ **Asian**
- ☐ **Black**
- ☐ **Hispanic/Latino**
- ☐ **Native Hawaiian/Other Pacific Islander**
- ☐ **White non-Hispanic**
- ☐ **Other:** _____

Highest level of education achieved to date:

- ☐ **High School**
- ☐ **Associate's Degree (2 Year College)**
- ☐ **Bachelor's Degree (4 Year College)**
- ☐ **Masters Degree**
- ☐ **Doctoral Degree**

Is English your first language? **YES** **NO**

APPENDIX C

INSTRUMENTS

PROJECT JOY PLAYFULNESS SCALE
VERSION A

CHILD'S NAME: _____

Dear Teachers:

Thank you for helping us to develop a measure of playfulness!

INSTRUCTIONS:

On this questionnaire, there are statements that describe how children might act or feel. Please read each statement and mark the response that describes how this child has behaved in the **past two weeks**.

If the child has not been in school for the past two weeks, please do not fill out this questionnaire.

Please mark every statement. If you don't know or are unsure of your response to a statement, give your best guess.

Circle **1** if the statement is Not True for this child, **2** if it is Somewhat True, **3** if it is Mostly True and **4** if it is Completely True.

INSTRUCCIONES:

En este cuestionario, hay las declaraciones que describen cómo niños quizás actúen o quizás se sientan. Lea por favor cada declaración y marque la respuesta que describe cómo este niño se ha comportado en **las últimas dos semanas.**

Si el niño no ha estado en la escuela para las últimas dos semanas, por favor no llena este cuestionario.

Marque por favor cada declaración. Si usted no está seguro de su respuesta a una declaración, elija la respuesta que usted piensa está correcto.

Marque **1** si la declaración no es verdadero, **2** si es un poco verdadero, 3 si es muy verdadero, y **4** si es completamente verdadero.

YOUR NAME: _____

TODAY'S DATE: _____

PROJECT JOY PLAYFULNESS SCALE	**Not True**	**Somewhat True**	**Mostly True**	**Completely True**
1. Child is able to focus on a play activity that he/she enjoys	1	2	3	4
2. Child actively participates in games and activities	1	2	3	4
3. Child keeps playing when a play activity becomes challenging (e.g., rebuilds tower after it has fallen, tries again to catch the ball)	1	2	3	4
4. Child engages in play without encouragement or praise	1	2	3	4
5. Child engages in play enthusiastically (e.g., eagerly, passionately)	1	2	3	4
6. Child finds ways to play in almost any environment (e.g., playground, classroom)	1	2	3	4
7. Child can play with a toy or object in several different ways (e.g., uses a block as a telephone, a camera, a microphone)	1	2	3	4
8. Child moves freely and actively during play	1	2	3	4
9. Child finds lots of different play activities interesting and engaging	1	2	3	4
10. Child shows curiosity in play (e.g., explores objects, asks questions)	1	2	3	4
11. Child is willing to try new play activities and games	1	2	3	4
12. During play, child recovers quickly from small disappointments (e.g., not being able to play with a specific toy)	1	2	3	4
13. When playing, child tries challenging things all by him/herself (e.g., climbing on the jungle gym, building a block tower, swinging on a rope)	1	2	3	4
14. When playing, child has an “I can do it” attitude	1	2	3	4
15. Child continues in challenging play even when feeling frustrated	1	2	3	4
16. Child takes initiative during play with others (e.g., suggests new games, recommends new rules)	1	2	3	4
17. Child shares ideas and suggestions during play	1	2	3	4

PROJECT JOY PLAYFULNESS SCALE	**Not True**	**Somewhat True**	**Mostly True**	**Completely True**
18. Child participates in play both as a leader and a follower	1	2	3	4
19. Child sustains attention in a play activity that he/she enjoys	1	2	3	4
20. During play, child takes turns and shares toys with little or no adult intervention	1	2	3	4
21. Child smiles often during play	1	2	3	4
22. Child celebrates his/her successes (e.g., smiles, laughs, dances, "jumps for joy")	1	2	3	4
23. Child laughs at silly or funny things during play	1	2	3	4
24. During play, child engages in silliness (e.g., does silly things that make others laugh)	1	2	3	4
25. Child enjoys music and dance activities	1	2	3	4
26. Child chooses to participate in group activities even when he/she is not the center of attention	1	2	3	4
27. Child finds opportunity for play in routine activities (e.g., putting on coats and shoes, washing hands, cleaning up)	1	2	3	4
28. Child enjoys playing by his/herself	1	2	3	4
29. Child plays with joy and delight	1	2	3	4
30. Child appears peaceful and content when playing	1	2	3	4
31. Child has fun in many different types of play activities	1	2	3	4
32. Child enjoys playing with others	1	2	3	4
33. Child is curious about the play of others (e.g., notices what other children are playing, watches others play with interest)	1	2	3	4
34. Child welcomes others to join in his/her play	1	2	3	4
35. Child plays harmoniously with others (e.g., gets along with peers, negotiates minor conflicts)	1	2	3	4

PROJECT JOY PLAYFULNESS SCALE	**Not True**	**Somewhat True**	**Mostly True**	**Completely True**
36. Child plays cooperatively with other children (e.g., plays as a team member)	1	2	3	4
37. Following conflict, child eventually chooses to return to play with peers	1	2	3	4
38. During play, child shows concern for other players (e.g., shares toys, listens to other children's suggestions)	1	2	3	4
39. Child is appropriately affectionate with others during play (e.g., smiles at others, gives hugs or hi-fives, cheers for others)	1	2	3	4
40. Other children choose to play with the child	1	2	3	4
41. Child freely joins others in play	1	2	3	4
42. Child helps others during play	1	2	3	4

PROJECT JOY PLAYFULNESS SCALE
VERSION B

CHILD'S NAME: _____

Dear Teachers:

Thank you for helping us to develop a measure of playfulness!

INSTRUCTIONS:

On this questionnaire, there are statements that describe how children might act or feel. Please read each statement and mark the response that describes how this child has behaved in the **past two weeks**.

If the child has not been in school for the past two weeks, please do not fill out this questionnaire.

Please mark every statement. If you don't know or are unsure of your response to a statement, give your best guess.

Circle **1** if the statement is Not True for this child, **2** if it is Somewhat True, **3** if it is Mostly True and **4** if it is Completely True.

INSTRUCCIONES:

En este cuestionario, hay las declaraciones que describen cómo niños quizás actúen o quizás se sientan. Lea por favor cada declaración y marque la respuesta que describe cómo este niño se ha comportado en **las últimas dos semanas.**

Si el niño no ha estado en la escuela para las últimas dos semanas, por favor no llena este cuestionario.

Marque por favor cada declaración. Si usted no está seguro de su respuesta a una declaración, elija la respuesta que usted piensa está correcto.

Marque **1** si la declaración no es verdadero, **2** si es un poco verdadero, 3 si es muy verdadero, y **4** si es completamente verdadero.

YOUR NAME: _____

TODAY'S DATE: _____

PROJECT JOY PLAYFULNESS SCALE	**Not True**	**Somewhat True**	**Mostly True**	**Completely True**
1. Child engages in play without encouragement or praise	1	2	3	4
2. Child engages in play enthusiastically (e.g., eagerly, passionately)	1	2	3	4
3. Child moves freely and actively during play	1	2	3	4
4. Child finds lots of different play activities interesting and engaging	1	2	3	4
5. Child shows curiosity in play (e.g., explores objects, asks questions)	1	2	3	4
6. When playing, child tries challenging things all by him/herself (e.g., climbing on the jungle gym, building a block tower, swinging on a rope)	1	2	3	4
7. When playing, child has an "I can do it" attitude	1	2	3	4
8. Child continues in challenging play even when feeling frustrated	1	2	3	4
9. Child takes initiative during play with others (e.g., suggests new games, recommends new rules)	1	2	3	4
10. Child shares ideas and suggestions during play	1	2	3	4
11. Child participates in play both as a leader and a follower	1	2	3	4
12. Child smiles often during play	1	2	3	4
13. Child celebrates his/her successes (e.g., smiles, laughs, dances, "jumps for joy")	1	2	3	4
14. Child laughs at silly or funny things during play	1	2	3	4
15. During play, child engages in silliness (e.g., does silly things that make others laugh)	1	2	3	4
16. Child enjoys music and dance activities	1	2	3	4
17. Child plays cooperatively with other children (e.g., plays as a team member)	1	2	3	4
18. Child plays harmoniously with others (e.g., gets along with peers, negotiates minor conflicts)	1	2	3	4
19. Other children choose to play with the child	1	2	3	4
20. Child freely joins others in play	1	2	3	4
21. Child helps others during play	1	2	3	4

CHILDREN'S PLAYFULNESS SCALE

INSTRUCTIONS:

On this questionnaire, there are statements that describe how children might act or feel. Please read each statement and mark the response that describes how this child has behaved in your classroom.

Please mark every statement. If you don't know or are unsure of your response to a statement, give your best guess.

INSTRUCCIONES:

En este cuestionario, hay las declaraciones que describen cómo niños quizás actúen o quizás se sientan. Lea por favor cada declaración y marque la respuesta que describe cómo este niño se ha comportado en su "classroom**."**

Marque por favor cada declaración. Si usted no está seguro de su respuesta a una declaración, elija la respuesta que usted piensa está correcto.

CHILDREN'S PLAYFULNESS SCALE	**Doesn't sound at all like the child**	**Sounds a little like the child**	**Sounds somewhat like the child**	**Sounds a lot like the child**	**Sounds exactly like the child**
1. The child's movements are generally well-coordinated during play activities	1	2	3	4	5
2. The child is physically active during play	1	2	3	4	5
3. The child prefers to be active rather than quiet in play	1	2	3	4	5
4. The child runs (skips, hops, jumps) a lot in play	1	2	3	4	5
5. The child responds easily to others' approaches during play	1	2	3	4	5
6. The child initiates play with others	1	2	3	4	5
7. The child plays cooperatively with other children	1	2	3	4	5
8. The child is willing to share playthings	1	2	3	4	5
9. The child assumes a leadership role when playing with others	1	2	3	4	5
10. The child invents his/her own games to play	1	2	3	4	5
11. The child uses unconventional objects in play	1	2	3	4	5
12. The child assumes different character roles in play	1	2	3	4	5
13. The child stays with one activity rather than changes activity during play	1	2	3	4	5
14. The child expresses enjoyment during play	1	2	3	4	5
15. The child demonstrates exuberance during play	1	2	3	4	5
16. The child shows enthusiasm during play	1	2	3	4	5
17. The child is restrained in expressing emotion during play	1	2	3	4	5
18. The child sings and talks while playing	1	2	3	4	5
19. The child enjoys joking with other children	1	2	3	4	5
20. The child gently teases others while at play	1	2	3	4	5

CHILDREN'S PLAYFULNESS SCALE	**Doesn't sound at all like the child**	**Sounds a little like the child**	**Sounds somewhat like the child**	**Sounds a lot like the child**	**Sounds exactly like the child**
21. The child tells funny stories	1	2	3	4	5
22. The child laughs at humorous stories	1	2	3	4	5
23. The child likes to clown around in play	1	2	3	4	5

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VITA

The author, Rebecca Cornelli Sanderson, received her Bachelor of Arts degree in French and Psychology from Bowdoin College in May 1998. After graduating from college, Ms. Cornelli Sanderson moved to Boston to pursue research interests at Inflexxion, a behavioral healthcare company developing multimedia prevention and intervention programs. Ms. Cornelli Sanderson simultaneously worked as the Assistant Director of Project Joy, a Boston-based non-profit using therapeutic play to heal children exposed to trauma. In 2002, Ms. Cornelli Sanderson moved to London. She received a Master's degree in Social Psychology at the London School of Economics and Political Science (LSE).

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The final copies have been examined by the director of the dissertation and the signature that appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given full approval by the committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

6/4/10
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