

THESIS

TEACHER TOLERANCE OF RISK IN PLAY SCALE (T-TRiPS):  
EVALUATING THE PSYCHOMETRIC PROPERTIES OF A NEW MEASURE

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## ABSTRACT

### TEACHER TOLERANCE OF RISK IN PLAY SCALE (T-TRiPS): EVALUATING THE PSYCHOMETRIC PROPERTIES OF A NEW MEASURE

A small amount of risk is a natural component of play that provides children with developmental benefits, increasing: competencies, autonomy and self-efficacy. The purpose of this study is to examine validity and reliability of data produced with a new instrument, Teacher Tolerance of Risk in Play Scale (T-TRiPS). T-TRiPS, a 25-item instrument, was administered to 99 teachers of children with disabilities, aged 4-12. Rasch analysis was used to analyze data. Findings support strong evidence for unidimensionality of the construct: positive point measure correlations, goodness-of-fit statistics in the acceptable range, and a logical item hierarchy. A strata value of 3.01 and person reliability index of 0.80 support internal reliability. T-TRiPS produces valid and reliable data regarding teacher tolerance of risk in play. T-TRiPS can serve as the basis for self-reflection or intervention aimed at increasing children's access to developmentally beneficial risky play.

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## CHAPTER 1

### INTRODUCTION

#### **The Problem of Risky Play**

Every day, all over the world, children are exposed to risks. But not all risks are bad. In fact, some risk that is a natural part of children's play provides vital opportunities for development (Sandseter, 2012). Through active engagement in "risky play," children learn to interact with others, trust their own abilities, discover the boundaries of their skills and imagine their potential (Beetham et al., 2019; Brussoni, Gibbons, et al., 2015; Garwood, 1982; Piaget, 1972; Sandseter & Kennair, 2011; Yogman et al., 2018). Children must learn to recognize and respond appropriately to risks in order to promote their health and well-being (International School Grounds Alliance, 2017).

Opportunities to respond to safe degrees of fear, physical, social and emotional challenge, uncertainty, and the possibility of failure support children in learning to assess risks and manage their responses to these situations (Sandseter, 2007; Spencer et al., 2016). Although several variations of the definition of 'risky play' exist, Sandseter (2009) defined this type of play as activities that are exciting, thrilling, and involve a risk of physical injury. Additional authors expanded this definition by including that risky play involves uncertainty and exploration - of one's physical capabilities, emotions, perceptions, and environment - and often involves a degree of relinquishing control by teachers and children (Ball, Gill, & Spiegel, 2012; Kleppe, Melhuish, & Sandseter, 2017; Lester & Russell, 2014; Spencer et al., 2016). For the purposes of this paper, I adopted a combination of these as my definition of risky play: activities that are exciting and thrilling, that involve exploration (of physical, social, emotional, perceptions, and environment) and that require children and adults to accept uncertainty and relinquish control.



While risky play can result in injury or even death, it is important to understand that risk of varying degrees is inherent in every situation and represents a spectrum of severity (Ball, 2002; Ball et al., 2012). Many advocates for risky play use terms such as “manageable risky play” or “safe risks” to refer to a level of risky play that is severe enough to be exciting and challenging to a child, but not so severe that likelihood of injury are obvious and expected (Ball et al., 2012; Sandseter, 2009). Perceptions of risk are subjective, indicating the severity of risky play will vary with individuals’ comfort with risk and perceptions of how dangerous an experience is.

Children typically engage in risky play during physical activity and while playing outdoors but the types of activities that are considered risky are numerous and complex. To help understand different characteristics of risky play activities, Sandseter (2007) interviewed children and teachers on the different risky play activities they enjoy and organized these into eight categories (Kleppe et al., 2017; Sandseter, 2009): (A) great heights, (B) high speeds, (C) dangerous tools, (D) dangerous elements, (E) rough-and-tumble, (F) disappear/get lost, (G) play with impact, (H) vicarious risk. (See Table 2.1 for in-depth descriptions of the categories of risky play.) Each of these categories houses numerous activities that comprise different severity of risk; several activities involve a combination of different categories. Even though there is a risk of injury inherent in risky play, the thrill and excitement of experiencing this type of play is one reason children return to risky play experiences time and time again. In addition to being a fun and satisfying experience, risky play has significant developmental benefits that are important to consider.

## **Benefits of Risky Play for Children of All Abilities**

Increasing recognition of risky play led researchers to seek to understand the benefits to children's health, development, and wellbeing. In a systematic review, Brussoni, Gibbons, et al. (2015) found that the impact of risky play on development is positive. The most commonly identified benefit is an increase in physical activity, but social, psychological, and cognitive benefits have also been identified (Brussoni, Gibbons, et al., 2015; Bundy et al., 2011). Children learn social interaction skills through opportunities to problem-solve when faced with conflict and while engaging in rough and tumble play with peers (Pellegrini, 1988). Problem-solving related to assessing risks and learning to manage them also promotes executive functioning, creativity, confidence and a positive sense of self. Being able to assess a risky play opportunity and decide how to engage while best managing the risk of injury are protective factors against injury because children have learned the boundaries of their own skills and how to best engage with risky environments (Brussoni, Olsen, Pike, & Sleet, 2012; Christensen & Mikkelsen, 2008). Additionally, when provided with opportunities to engage in risky play, children face less boredom and do not so often seek out exciting opportunities that can be beyond their ability (Brussoni, Brunelle, et al., 2015; Sandseter, 2009). The benefits of risky play are not limited to typically developing children; they also are impactful for children with disabilities like autism and intellectual disability as well and should, therefore, be a priority for this population (Bundy et al., 2015).

## **Consequences of Limiting Risky Play**

There is growing acknowledgement of the importance of risky play; however, barriers remain in practice (Ball, Brussoni, Gill, Harbottle, & Spiegel, 2019; Sandseter, 2014). When risky play is prohibited or a child's skills are more advanced than the challenges their play

environment can offer, children often seek out exceedingly challenging experiences that provide them with the slight thrill of fear and uncertainty to combat boredom (Sandseter, 2007). This thrill-seeking play can result in injury as children are ill-equipped to manage this spike in severity of risk. Therefore, it is important to provide children with gradually increasing risky play opportunities that support them in assessing their ability to manage the risks, and ultimately, develop new skills.

### **Children with Disabilities**

Despite the well documented benefits of play on development and the UN's declaration that all children have the right to engage in play (U.N.C.R.C., 1989), children with disabilities experience play inequity compared to their typically developing peers (Sterman, Naughton, Bundy, Froude, & Villeneuve, 2019). The cause of this imbalance in opportunities for play is multidimensional, including perceptions of the children's abilities, barriers from inaccessible physical environments, school playground policies limiting risk to prevent injury, adult fears related to their understanding of children's capabilities, and lack of support from the local governments (Bundy et al., 2015).

Autism spectrum disorder (ASD) is characterized by deficits in communication and social interactions and is often accompanied by repetitive and restrictive interests or behaviors (American Psychiatric Association, 2013). Intellectual disability (ID) is a broad category of disability that is usually diagnosed in children prior to the age of 18 and is characterized by limitations in intellectual function and challenges with developing adaptive behaviors (American Psychiatric Association, 2013). Severity of impairments varies greatly in children with ID presenting as varying cognitive, social interaction, and physical limitations, all of which are important to play. Because of these challenges, children with ASD and ID are often viewed as

lacking the skills to engage successfully in play and are often not given the opportunity based on concerns for injury due to these perceived deficits.

Limiting risky play is not done with mal intent, but instead is an attempt by adult care providers to limit injury for children with disabilities, those who are considered our most vulnerable population (Beetham et al., 2019; Newnham, 2000; Wolfensberger, Nirje, Olshansky, Perske, & Roos, 1972). Without opportunities to take on increasingly complex challenges during play, children with disabilities miss out on opportunities to develop skills that help them manage risky play in addition to all of the health and well-being benefits mentioned earlier (Beetham et al., 2019; Bundy et al., 2015). Unfortunately, adult aversion to risk, sometimes called surplus safety, results in fewer opportunities for children to engage in risky play- this is especially true on school playgrounds and for children with disabilities (Brussoni, Gibbons, et al., 2015; Buchanan, 1999; Bundy et al., 2015; Spencer et al., 2016; Wyver et al., 2010).

### **Risky Play at School**

In the school setting, recess on the playground is children's primary opportunity for play (Ramstetter, Murray, & Garner, 2010). During the school day, recess serves as a much-needed break from the rigorous requirements placed on children to remain still and maintain cognitive focus during academic instruction. Educators and experts in child development recommend protecting a regular opportunity for unstructured outdoor play (Ball, 2002; Ball et al., 2019; Brussoni, Brunelle, et al., 2015; Gill, 2018). Unfortunately, even when this unstructured play time is available, recess is often considered a break for teachers as well as children, rather than an opportunity to provide quality play experiences. Further, even though the benefits of physical activity and play are well understood, the time available for engaging in play continues to be cut back in favor of increasing time for academic instruction (Gill, 2018; Ramstetter et al., 2010).

In addition to the emphasis on academics over play, the fear of child injury on the playground has only contributed to the problem of decreasing opportunities to engage in play, especially risky play. Policies for playground safety also serve as a significant barrier to risky play. In many countries, school playgrounds have become very regulated by focusing on the characteristics of the playground structures and teacher supervision to limit injury. Policies, with good intentions, focus on removing risk and do not consider the impact to a child's opportunities for play or the stress they put on teachers (Ball et al., 2019). Teachers often make decisions about which play activities to condone and which to interrupt based on their discomfort and fear of potential consequences for allowing risky play that could be viewed as violating play policy (Spencer et al., 2016). We must understand the reasoning behind teachers' fears of situations they consider risky and support them in shifting their perspectives to promote important learning.

### ***Risky Play at School: Fear and Responsibility***

Teachers have an invaluable role in the care of children. They are called to recognize the unique skills and experiences that shape each child while at the same time recognizing children's future potential. The often-opposing responsibilities of teachers to protect children from any potential of harm while simultaneously providing rich opportunities for learning so children may develop into independent adults can be summarized by the concepts 'duty of care' and 'dignity of risk'. The juxtaposition of duty of care and dignity of risk is especially relevant when considering the responsibilities of teachers working with children with disabilities. Duty of care is defined by the law in relation to school liability; teachers are responsible to supervise children and prevent their exposure to situations that could result in injury (Newnham, 2000). Dignity of risk is the right of a person, especially those with a disability, to experience manageable exposure to risky situations in order to learn skills for risk management in anticipation of future

autonomy (Wolfensberger et al., 1972).

At school, the threat of liability following injury on the school playground is a significant concern for most teachers. Injury may give rise to charges of negligence or failure to fulfill their duty of care. However teachers are rarely negligent (Newnham, 2000). Instead, injuries may result from children seeking exciting play situations when opportunities for play are not challenging enough and therefore boring (Brussoni, Brunelle, et al., 2015). Fear of liability has resulted in an imbalance between duty of care and dignity of risk with an emphasis on duty of care (Little, 2010). Additionally, many teachers simply have their own personal reservations regarding risk and believe that all risky situations are dangerous, have high likelihood of resulting in injury, and should be avoided (van Rooijen & Newstead, 2016).

Even teachers who would allow their own children to engage in risky play feel uncertain when supervising students engaging in risky play on the playground and interrupt the play in response. The cultural shifts towards risk aversion and surplus safety (Buchanan, 1999; Gill, 2018; van Rooijen & Newstead, 2016; Wyver et al., 2010) make it difficult for teachers to feel they can allow risky play, without fear of consequence, even if they perceive associated benefits.

In one study, Little (2010) interviewed teachers on their perspectives of risky play and safety during outdoor play. Even though many teachers acknowledged the value of risky play, they feared litigation and lack of support from school administrators and child health and safety regulations. Regulatory factors that limit play include playground structure guidelines (e.g., height, fall material, surface texture), teacher to child ratios on the playground, and school-specific play policy like restricting children to only going down a slide, feet first, on their bottom (Ball, 2002; Little & Eager, 2010; van Rooijen & Newstead, 2016). Little (2010) acknowledged the contradictory perceptions held by teachers (i.e., on one hand children are competent and

capable, but on the other hand, they are vulnerable and teachers must protect them) that cause conflict between teachers' pedagogical beliefs and their actions in the face of risk, furthering the imbalance between duty of care and dignity of risk.

In recent years, with increasing recognition of the benefits of risky, many education programs have attempted to prioritize opportunities for risky play at school during play outdoors (Brussoni, Gibbons, et al., 2015; Brussoni et al., 2012; Wyver et al., 2010). Thus, educators need to adopt a more nuanced view of risk, beyond good or bad, and understand that risky play holds opportunities for development including confidence, healthy lifestyle, resilience, social skills, and problem solving (Brussoni, Brunelle, et al., 2015; Cooke, Wong, & Press, 2019). Nonetheless, several researchers (Cooke et al., 2019; Spencer et al., 2016) have found that, while societal understandings of risky play are shifting towards valuing these benefits, the initial reaction of teachers when supervising a child in a risky play situation is still to interrupt the play to protect themselves from negative consequences. In order for a child to truly reap the benefits of learning through the dignity of risk, their care providers must cease overprotection and instead seek a realistic balance with their duty of care.

### ***Sydney Playground Project***

My research takes place within the context of a larger cluster trial (CT) called The Sydney Playground Project (SPP). SPP featured a 2-part intervention: (1) introduction of loose parts materials to school playgrounds and (2) risk-reframing workshops to help adults acknowledge and change their beliefs of risk with the end goal of promoting risky play (Bundy et al., 2015). Risk-reframing workshops provided opportunities for adults to discuss their beliefs about risky play as well as educate them about: its benefits, what to do when faced with discomfort while supervising play, ways of scaffolding learning for children during risky play,

and how to evaluate the severity of a risky play situation (Bundy et al., 2015; Niehues et al., 2013; Spencer et al., 2016). These trainings helped teachers feel more comfortable with balancing duty of care and dignity of risk and increasing children's opportunities for risky play (Bundy et al., 2015; Niehues et al., 2013; Spencer et al., 2016). Three iterations of the SPP occurred: a pilot, a cluster randomized trial in mainstream primary schools and a cluster trial in substantially separate programs for children with autism and intellectual disability in greater Sydney, Australia.

The SPP team developed an instrument to measure adult risk tolerance and help determine the impact of the SPP. During the risk reframing sessions of the first CT, the researchers administered the Tolerance of Risk in Play Scale (TRiPS) to teachers and parents (7 out of 100 were teachers) to examine evidence for construct validity and reliability and provide a baseline measure of their tolerance of risky play (Hill & Bundy, 2014).

**The Tolerance of Risk in Play Scale (TRiPS).** The Tolerance of Risk in Play Scale measured caregivers' tolerance of risk when considering various risky play activities. The original measure includes several yes/no items based on categories of risky play, risk propensity, parental overprotection and risk tolerance in supervision and childhood injury risk (Morrongiello & Corbett, 2006; Sandseter, 2007, 2009). The items included range from "very risky," and therefore difficult to endorse, to those that are "not risky at all," and therefore easy to endorse. TRiPS produced valid and reliable data (Hill & Bundy, 2014). See Table 1.1 for psychometric data and Figure 1.1 for a complete list of TRiPS items and their corresponding risky play categories. During its use in the SPP however, it became clear that this measure was not a good reflection of the roles of teachers. The responsibilities of teachers and play situations they supervise while at school differ greatly from those of parents. Additionally, the TRiPS was



written in consideration of an individual (or few) child's play behaviors and is less applicable for teachers who are responsible for supervising a group of children. There are few instruments available that evaluate how adult caregivers (parents and teachers) feel about risky play, and none that evaluate teachers' tolerance of risky play on the playground. A new measure specifically for teachers of children of all abilities and for the school playground context is needed. In order to shift teachers' perspectives of risk and support them in providing manageable risky play opportunities for children, researchers require a valid and reliable tool to identify a teacher's current tolerance (or intolerance) of risky play. The ability to measure teacher tolerance of risky play may serve as a mechanism for change by offering opportunities for intervention as well as by identifying tangible increases in a teacher's risk tolerance following intervention. A new instrument may support the effort to promote autonomy, health, and well-being for all children beginning with the ability to accurately measure teacher tolerance of risk in play. Modifications to the TRiPS (Hill & Bundy, 2014) to better suit the roles and situations of teachers resulted in a new instrument called the Teacher Tolerance of Risk in Play Scale (T-TRiPS). T-TRiPS will help teachers acknowledge their perceptions of risk and the impact of their intolerance of risky play on children's development. The purpose of this research is to evaluate data produced with the T-TRiPS for evidence of validity and reliability.

**Table 1.1***Psychometric Properties of the Tolerance of Risk in Play Scale (TRiPS) (Hill & Bundy, 2014)*

Purpose	Description	Psychometric data	
Measure adult caregiver tolerances of risk during children's play	32 items with dichotomous response (yes / no) ranging from "very risky" to "not risky at all"	<i>Internal validity:</i> goodness of fit statistics for all items within acceptable values: MnSq: <1.5 ZSTD: <2 2	
Primary school aged children		<i>External validity:</i> Risk Averse M = -1.62 SD = 1.68 Somewhat Risk Averse M = -0.37 SD = 1.30 Somewhat Risk Tolerant M = 1.20 SD = 1.81 Risk Tolerant M = 2.64 SD = 2.1 Person Separation Index 2.56 Person Reliability Index.87	
		Children 3 to 4 years:	M = -0.13 SD = 1.25
		Children 5 to 7 years:	M = 0.20 SD = 1.78
		Children 8 to 10 years:	M = 1.5 SD = 1.78
		Children 11 to 13 years:	M = 1.95 SD = 1.82



**Figure 1.1. Tolerance of Risk in Play Scale Item Map and Corresponding Category of Risky Play (Hill & Bundy, 2014; Sandseter, 2009)**

### **Drawn to Advocate for Risky Play**

Before I was an occupational therapy student, I was an early childhood educator for 5 years at a local play-based lab school called the CSU Early Childhood Center (ECC). The ECC is inspired by the Reggio Emilia approach to teaching which informed my professional practice and interactions with children. I learned alongside the children, viewing them as capable and competent, and the environment as an important source of learning that supports or limits development (Malaguzzi, 1994).

During my time at ECC, I worked with many age groups--the school provides care for children ages 6 weeks to 6 years--but spent the most time teaching older preschool children: the 4-6-year-olds. I witnessed firsthand the incredible impact play has on learning and development. For 5 years, I tracked immense change in my students' development in all educational domains, from traditional academic skills to motor development to cognitive and social-emotional skills. Even though I attributed these changes to their engagement in play and the belief of our school that all children are competent and capable, the limitations of licensing and societal fears surrounding injury were ever-present and often restricted the play opportunities I was able to offer my students. Many times, my fear of children becoming injured and the consequences that could follow, not to mention licensing restrictions, led me to limit play experiences that children considered valuable and exciting. A key example of this is the opportunity to climb. Even though we had a wonderful tree in the yard with branches perfectly spaced for young children to climb, I had to redirect the children to climb on the playground structure because it was approved by licensing and was considered safe. I understood the value of the challenge that comes with climbing trees, but I feared children getting hurt and my own liability as a result of such play.

Now that I am an occupational therapy student, I recognize the importance of play on

development from a new perspective and value it as one of the key occupations of childhood (Parham & Fazio, 2008). The role of occupational therapists is to empower and support our clients to participate in the occupations (all the ways people spend their time) that they find meaningful in order to promote their health, well-being, self-efficacy, and quality of life. Upon reflection of my time as a teacher from this occupational therapy perspective, I recognize the barrier to many types of play activities is a serious risk to the health and wellbeing of children.

In a written address to educators in Reggio Emilia, Italy titled “The Image of the Child--Where Teaching Begins”, Loris Malaguzzi (1994) wrote about the powerful transaction between children and available environments and opportunities. He called on teachers to recognize the power of play experiences when children are allowed to be children and engage in social relationships, experiment with materials, and follow their interests without adult interruption. “What we want to do is activate within children the desire and will and great pleasure that comes from being the authors of their own learning” (Malaguzzi, 1994, p. 3). Malaguzzi (1994, p. 5) concluded his address with a powerful challenge for teachers: “Instead of always giving children protection, we need to give them the recognition of their rights and of their strengths.” I believe one way of supporting children’s learning through risky play is by helping teachers gain knowledge and strategies to face feelings of uncertainty and refrain from interrupting play and, instead, empower children to acknowledge their own strengths and boundaries related to risk.

All children, regardless of ability and background, have the right to play (U.N.C.R.C., 1989). During the United Nation’s Convention on the Rights of the Child in 1989, people all over the world received a call to action to protect this right and provide children with safe and nurturing opportunities for learning and development through play (U.N.C.R.C., 1989). Through this research, I respond to this call and uphold my responsibility to advocate for children’s rights to play by arguing that the best possible opportunity for development lies in benefits gained through opportunities for

risky play. I chose to participate in this research to help address this problem and remove barriers to risky play by contributing a tool that will help teachers think differently about their own tolerance of risky play and help identify ways to promote this important right for all children.

### **Research Questions**

The aim of this study is to assess the psychometric properties of data gathered with the Tolerance of Risk in Play Scale for Teachers (T-TRIPS). This aim is guided by the following research questions:

- 1) Do data collected by this instrument demonstrate evidence of construct validity?
- 2) Do data collected by this instrument demonstrate evidence of internal reliability?

### **Overview of Thesis**

In this chapter, I presented the background to the research, explained the rationale for and significance of the study, introduced the research that gave rise to this study and my own background, and identified the research aims and questions.

In Chapter 2, I presented a review of available instruments to assess adult perspectives of risk and play as well as instruments to assess the play environment on school playgrounds.

Chapter 3 comprises includes a manuscript formatted for the journal to which I intend to submit it.

In Chapter 4, I discuss the findings and implications for future research as well as personal reflections of the thesis experience.

## CHAPTER 2

### LITERATURE REVIEW

This critical synthesis of the literature includes two sections and several sub-sections. The first evaluates existing adult-report measures related to children's play and risk. The second focuses on available observation-based tools that evaluate the school playground and children's play on school playgrounds.

- Adult-report Measures Related to Play and Risk
  - o Adult Perceptions of Risk – Beneficial or Detrimental?
  - o Child Play and Behaviors as Predictors of Risk and Injury
  - o Adult Practices that Contribute to Risk and Injury
- Observational Measures of Play and Environment on the School Playground
  - o Evaluations of the School Play Environment
  - o Children's Play on the Playground
  - o Play for Children with ASD/ ID

To find relevant literature for this study, I completed a search of electronic databases, university textbooks, and websites. In addition, I engaged in handsearching the reference sections of related literature and theses. Electronic databases that were searched include: ERIC, CINAHL, MEDLINE, Academic Search Premier, and PubMed. Search terms included: risk, tolerance, attitudes, perceptions, measure, instrument, play, children, teacher, playground, fear, risk assessment, risky play, tool, questionnaire, measurement, survey, questionnaire, attitude to risk, risk reframing, playthings, child, children with disabilities, children with autism. I searched websites including Google Scholar (<http://scholar.google.com>), Shirley Ryan AbilityLab (<https://www.sralab.org/>

[rehabilitation-measures](#)), and Sydney Playground Project (<https://www.sydneyplaygroundproject.com/publications>) for literature related to teachers' risky play tolerance.

Inclusion criteria for instruments and observation tools in this literature review are: (1) those intended for use in reference to children 4- to 14-years-of-age, (2) those to be completed by adult caregivers (teachers and parents) , and (3) those that assess children's play and play behaviors, risky play, adult opinions of risky play, adult behaviors that contribute to risk, and perspectives of the play environment. Few measures and observation tools exist that are specifically intended for children with autism spectrum disorder (ASD) and intellectual disability (ID); however, several are appropriate for use with children of all abilities. I included those. Additionally, I included adult-report instruments intended for use in various environments (playground, home, and community).

Topics of play and risk that are beyond the scope of this review are those that are: indirectly relate to play; observational tools focusing only on child physical activity levels; child-report measures of play and risk tolerance; adult-report measures of a child's capacity, playfulness, or skill related to play; and observational tools intended for use anywhere except the school playground. I was unable to access some instruments mentioned in the literature. I attempted to access these instruments through interlibrary loan at Colorado State University and conducted an extensive search of the sites included above; many instruments were published prior to digital publication and were unavailable.

Before discussing available instruments, I wish to acknowledge the qualitative studies found during this literature review that examine teacher's perspectives or beliefs of risky play through various data collection methods-- interviews, focus groups, email correspondence, and reflection by researchers (Cevher-Kalburan, 2014; Lindqvist, Nordänger, & Landahl, 2009;



Little, 2010; Little, Sandseter, Hansen, & Wyver, 2012; McFarland & Laird, 2017; Niehues et al., 2013; Sandseter, 2011; Sandseter, 2012, 2014; Spencer et al., 2016). I mention these studies only briefly as they, too, are beyond the scope of this review. Researchers studied a variety of topics related to risky play using qualitative methods to understand teacher perspectives including: tolerance of risky play by the children in their care, beliefs of the value of risky play, perspectives of barriers to risky play, and perspectives of consequences associated with risky play. While these studies align with the purpose of this thesis and offer valuable information on teacher perspectives of risky play, they did not use a standardized instrument to measure adult risk-tolerance. Additionally, many of these studies had small sample sizes and included time-consuming procedures, which limit the generalizability or replicability of these methods in future studies. Some studies used tools specifically developed for their research including “self-report scale”, “survey”, or “tool” (Sandseter, 2014), but the majority of these were difficult to find and if found, they have not been evaluated for their psychometric properties.

### **Adult-Report Measures Related to Play and Risk**

I found several adult-report measures that evaluate the behaviors of children and adults related to play and risk. Few considered risk to be a benefit; most considered risk to be a definite precursor to injury. Measures that describe risk as detrimental are intended to aid in mitigating any possibility of risky experience, therefore removing any possibility of injury. Other instruments assess a child's behaviors as a precursor to injury; some assess adult behaviors and consider them a precursor to injury. Several measures were intended for a specific age group and are not appropriate for use with children in a primary school setting; none are intended specifically for children with disabilities.

Two measures I reviewed in this section evaluate two different constructs within the same instrument: perceptions of risk and adult practices that contribute to risk. Table 2.1 contains a brief description of these measures along with their psychometric data. While several adult-report measures of children's play and risk exist, none of the available instruments assesses teacher tolerance of risky play on the school playground.

### ***Measures of Adult Perceptions of Risk: Beneficial or Detrimental?***

Adults' fear of the consequences of child injury and a societal tendency towards risk avoidance has resulted in surplus safety (Buchanan, 1999; Wyver et al., 2010); many measures were developed that view risk as dangerous and some measure adult perceptions that risks are detrimental. For example, the Worry Assessment and Risk Estimation Scale (WARE) (Will, Lorek, Sabo, & Kidd, 2009) considers risk as a direct cause of injury.

Nonetheless, some measures that capture adults' perspectives that risk could be beneficial do exist. The Risk Engagement and Protection Survey (REPS) (Olsen, Ishikawa, Masse, Chan, & Brussoni, 2018), the Parental Perception of Positive Potentiality of Outdoor Autonomy for Children (PPOAC) (Prezza, Alparone, Cristallo, & Luigi, 2005), and an untitled scale used by (Sandseter, 2014) all perceive mild risk or risky play as potentially beneficial for child development and assess adult perceptions of risk from that perspective. The REPS and the WARE each measure two different constructs, therefore, I discuss them in two sections of this literature review.

The REPS was administered to fathers visiting the hospital with their child and assesses two seemingly contrasting concepts (Olsen et al., 2018): a father's approach to protect his child from injury and his approach to engaging his child in healthy risk-taking. Olsen et al. (2018) discovered that while the subscale for each concept is psychometrically sound, the two concepts

have a weak correlation and thus belong to two independent constructs. Additionally, REPS assesses the fathers' perceptions that risky physical play has developmental value but does not consider other types of risky play (Sandseter, 2009) and therefore provides an incomplete picture of risky play perceptions.

The PPOAC is intended to assess the degree to which parents perceive their children playing outdoors alone in their neighborhood is a worthwhile risk that may promote autonomy (Prezza et al., 2005). While this instrument's assumption that risky situations could positively impact child development is promising for shifting perspectives of risky play, it provides only a limited glimpse into adult perceptions of risk and does not touch on different types of risky play. Additionally, the PPOAC does not evaluate the adult caregiver's tolerance of risky play (Prezza et al., 2005).

Following her work to understand risky play, Sandseter (2014) conducted a new study using a custom scale to collect data on teacher's perceptions of risky play. This new scale, however, has not been proven to produce data that are psychometrically sound and is therefore unable to be used in future research as a standardized measure.

Unlike the previous three measures, the WARE assesses levels of parent concern for risk and the relationship between their concerns and potential injurious situations (Will et al., 2009). This measure is intended for use with 6-year-old children. Notably, the authors of the WARE intentionally chose the items to cover a risk continuum, indicating their understanding that risk has different degrees of severity. However, unlike other positive risk scholars, the authors of the WARE view risk as detrimental (Ball, 2002; Ball et al., 2012; Brussoni, Brunelle, et al., 2015).

Measures of adult perspectives of risk as being either beneficial or detrimental do demonstrate some understanding of the benefits of risky play; however, with the exception of the

tool used by Sandseter (2013), they only scratch the surface of this important topic. These measures consider only one type of risky play and or only take a narrow, negative assumption of risk. This narrow consideration is in stark contrast to risky play scholars' arguments that (1) there are various severities of risk and (2) several unique categories of risky play exist, each with specific benefits to child development (Ball, 2002; Sandseter, 2009). In addition, these measures are intended to consider children of specific limited age ranges; none are appropriate for all children in a primary school setting (4-12 years). The scale developed by Sandseter (2013) is the only tool in this review that specifically measures teacher perspectives of risky play activities in a school setting; all others are intended for parents in a variety of environments that differ greatly from the school playground. Unfortunately, Sandseter's (2013) scale is not a standardized measure. Instruments like the ones mentioned above are impractical for teachers to use on a playground because they refer to a much smaller number of children than the entire class for which the teacher would be responsible. There are significant limitations with all of these measures, but it is important to acknowledge the efforts of the authors towards valuing the benefits of risk.

### ***Measures of Child Play and Behaviors as Predictors of Risk and Injury***

Researchers have attempted to understand how children spend their time and measure the behaviors children engage in that can potentially result in dangerous situations and injury. Unfortunately, measures like the Play Activity Questionnaire (PQ) (Finegan, Niccols, Zacher, & Hood, 1991), the Sensation Seeking Scale (SSSC) (Morrongiello & Lasenby, 2006) and the Injury Behaviors Checklist (IBC) (Speltz, Gonzales, Sulzbacher, & Quan, 1990) place the cause of injury within the child rather than an interaction between the child and the physical and social environment. The PQ (Finegan et al., 1991) is intended to assess children's preferences for

different types of play activities and identify gender preferences for these activities. While this measure provides adults with a glimpse of how children spend their time and the item ‘rough and tumble’ play equates to one category of risky play (Sandseter, 2009), the PQ does not consider risk or adult perception of risky play.

The SSSC (Morrongiello & Lasenby, 2006) is grounded in the assumption that sensation seeking behaviors will result in a child engaging in physically risky play and potentially becoming injured. The Injury Behaviors Checklist (IBC) (Speltz et al., 1990) also evaluates the behaviors of a child that could result in injury. Both measures assume the cause of injury resides within the behaviors and actions of the child and both measures view risky situations as being inherently negative. Additionally, the PQ and the SSSC are parent-report and are inappropriate for use by teachers because of the stark differences in activities and environments experienced between parents and teachers. These measures fall short of addressing adult’s perceptions of risky play, especially those of teachers.

### ***Measures of Adult Practices that Contribute to Risk and Injury***

In an attempt to mitigate injury, researchers have tried to understand adults’ roles in risky situations by measuring parents’ behaviors related to risk and injury. Instruments including the Parent Supervision Attributes Profile Questionnaire (PASPPQ) (Morrongiello & Corbett, 2006), the Supervision Attributes and Risk-taking Questionnaire (SARTQ) (Morrongiello, Corbett, & Kane, 2011), the Worry Assessment and Risk Estimation Scale (WARE) (Will et al., 2009), and the ‘protection’ component of the Risk Engagement and Protection Scale (REPS) (Olsen et al., 2018) place blame on parents for child injury instead of considering the interaction between the parent, the child, and the environment.

The PASPQ is intended for parents of preschool-aged children and the SARTQ is intended for primary school-aged children. In an attempt to identify potential cause of injury, both measures evaluate supervision-related behaviors and beliefs of parents as predictors of their children's risk of injury (Morrongiello & Corbett, 2006; Morrongiello, Corbett, & Kane, 2011). Notably, both the PASPQ and the SARTQ evaluate parents' tolerance of their children's risk-taking, albeit with a detectable negative perception of risk. Both the PASQ and the SARTQ consider all risk to be dangerous and detrimental, therefore assuming the need to minimize risk to protect the child from injury. These measures view the potential cause of injury as residing within the parent because of their behaviors, even when asked to consider the child's risky behaviors.

The other half of the REPS assesses fathers' approach to protecting their children from injury (Olsen et al., 2018) by measuring the degree to which fathers engage in various behaviors, for example, knowing what their child is doing at all times and making sure the home is free of all hazards (Olsen et al., 2018). While some items in this measure do address father comfort with risky situations, child injury is the assumed result if a father fails to fully engage in the item behaviors. There is no middle ground to allow for engaging in manageable risky play.

Similar to previous subsections of this review, these measures have significant limitations for providing safe opportunities for risky play. A chief issue of these measures is the assumption that a parent's behaviors are directly responsible for risk resulting in negative and dangerous consequences. Additionally, none of the above measures are intended to be used by a teacher in consideration of a group of children; none of the measures are appropriate for a school playground, and none evaluate an adult's tolerance of risky play.

**Table 2.1***Adult-report Measures of Play and Risk*

Instrument (Author)	Age	Reporter & Environment	Purpose	Description	Psychometrics
Adult Perceptions of Risk – Beneficial or Detrimental?					
<b>*Risk Engagement and Protection Survey (REPS)</b> (Olsen et al., 2018)	6-12 years		Assess fathers’ approach to protecting their children from injury and engaging children in risks.	8 items: protection from injury	Injury protection $\alpha = 0.75$ $r = 0.88$
			While at hospital for an injury / non-injury reason	6 items: risk engagement (attitudes towards child risk engagement AND benefits of risk engagement)	Risk engagement $\alpha = 0.77$ $r = 0.48$  Low correlation between injury protection and risk engagement factors indicate they are separate constructs
<b>Parental Perception of Positive Potentiality of Outdoor Autonomy for Children (PPOAC)</b> (Prezza et al., 2005)	9-10 years	Parents  Outdoor play environments within neighborhood	Assess parent perception that children playing alone outdoors is a worthwhile risk that will promote their child’s autonomy	5-item scale	$\alpha = 0.74$ Higher scores indicate positive perceptions of potentiality to develop autonomy

<b>Questionnaire of practitioner's personal risk-taking and perceptions of children's risk-taking (scale)</b> (Sandseter, 2014)		Teachers	Assess practitioner's attitudes of risky play	11 item scale, each item with two statements (one more risk tolerant, one more risk averse)	Not tested
Child Play and Behaviors as Predictors of Risk and Injury					
<b>Play Activity Questionnaire (PQ)</b> (Finegan, Niccols, Zacher, & Hood, 1991)	4-12 years	Parents	Assess children's interest in different types of play and distinguish between boys' and girls' preferred play activities	15 items (active and adventurous, athletic, rough-and-tumble, and quiet)  7-point scale	Moderate level of parent agreement $r(79) = 0.70, p < 0.001$ $\alpha = 0.81$



<b>Injury Behaviors Checklist</b> (Speltz et al., 1990)	2-5 years	Parent or teacher	Measure of behavioral characteristics that predict injury in children.	24 items describing various specific risky behaviors  Possible total score range 0-96	$\alpha = 0.87$ $r = 0.81$ ( $p < .01$ )  Validity of high injury liability: M = 33.7 SD = 13.4 Validity of moderate injury liability: M = 24.4 SD = 9.7 Validity of low injury liability: M = 22 SD = 10.5  The effect of injury liability on IBC scores was significant ( $22.33, p < .001$ )
<b>Sensation Seeking Scale for Children (SSSC)</b> (Morrongiello & Lasenby, 2006)	7-12 years	Parent- and child-report	Measure sensation seeking in relation to physical risk taking.	32 items of sensation seeking and tendency in five categories of behavior (boredom susceptibility, thrill seeking, behavioral intensity, novelty seeking, and inhibitory control)	Internal reliability: Boredom Susceptibility $\alpha = 0.70$ Behavioral Intensity $\alpha = 0.83$ Behavioral Inhibition $\alpha = 0.83$ Novelty Seeking $\alpha = 0.45$ Thrill Seeking $\alpha = 0.85$

Adult Practices that Contribute to Risk and Injury					
<b>Worry Assessment and Risk Estimation Scale (WARE)</b> (Will et al., 2009)	6 years		Assess levels of parental concern and perceptions of risk associated with injury hazards.	21 injury and health hazard scenarios, intended to cover a risk continuum  11-point scale	Internal Consistency: $\alpha = 0.89$
<b>Parent Supervision Attributes Profile Questionnaire (PAS PQ)</b> (Morrongiello & Corbett, 2006)	2-5 years	Parents	Assess parent supervision in relation to child risk of injury	29 items addressing (1) protectiveness, (2) supervision beliefs, (3) tolerance for children's risk taking, (4) belief in fate determining safety  5-point scale	$\alpha = > 0.70$ for all subscales $r = > 0.70$ for all subscales Goodness of Fit Index = 0.93 Comparative Fit Index = 0.96 Standardized Root Mean Square Error of Approximation = 0.06 $\chi^2 = 1.79$
<b>Supervision Attributes and Risk-taking Questionnaire (SARTQ)</b> (Morrongiello et al., 2011)	7-10 years	Parents	Assess perceptions of supervision and risk-taking in relation to risk of injury  Assumes the need to minimize risk	3 subscales: - parent need for psychological control (C)=15 items - beliefs in the value of supervising children at these ages (VS)= 17 items - children's risk-taking (CRT)= 18 items  5-point scale	Overall $\alpha = 0.73$  C $\alpha = 0.72$  VS $\alpha = 0.78$  CRT $\alpha = 0.75$

\*These instruments fit within two categories: adult perceptions of risk and adult practices that contribute to risk

## **Observational Measures of Play and Environment on the School Playground**

To understand the role of teachers and risky play experiences on the school playground, researchers have developed several measures to evaluate affordances of the environment, how children spend their time, and the dynamic between the two during play at school. I identified playground observational measures that evaluate characteristics of the play context, measures of children's play and behaviors, and two measures specific to children with disabilities. I only found one measure that acknowledges the existence of risky situations present in the playground environment and evaluates the impact of those situations on play. I did find one measure that evaluates play policy and opportunity related to play participation. I identified some measures that evaluate the play environment and several observational measures that assess children's levels of physical activity, types of play, and social interactions on the playground. Table 2.2 comprises a brief description of these measures along with information about psychometrics.

While several playground-specific measures exist, none evaluate teacher perspectives of risky play. Nonetheless, these measures provide insights into the play behaviors of children, which can then help inform opportunities for safely managing risky play (Cooke et al., 2019; Niehues et al., 2013; Spencer et al., 2016).

### ***Evaluations of the School Play Environment***

Researchers have attempted to measure the quality of the play environment and the resulting activities and behaviors of children through use of observation measures like the School Physical Activity Policy Assessment (S-PAPA) (Lounsbery, McKenzie, Morrow, Holt, & Budnar, 2013) and the Great Recess Framework Observation Tool (GRF-OT) (Massey, Stellino, Mullen, Claassen, & Wilkison, 2018). Both measures focus on the availability and quality of physical and social environment variables and the play activities and behaviors that take place on

primary school playgrounds. S-PAPA is unique in that it considers school policies of physical activity alongside characteristics of physical education and school recess with the intention of identifying opportunities to increase physical activity (Lounsbery et al., 2013). The GRF-OT is intended to assess the quality of the playground environment and resulting child play behaviors, particularly to detect change in the playground environment following intervention (Massey et al., 2018). Notably, both measures emphasize the physical components of a playground but only briefly consider social components such as adult supervision or interaction with peers and teachers. These measures address important concepts related to children's opportunities for play on the playground but fail to provide a complete picture of the characteristics contributing to risky play situations and do not assess tolerance of risky play.

Physical play is not the only type of play, nor the most important, that children engage in on the school playground; however, S-PAPA's primary outcome is physical activity (Ball et al., 2012; Gill, 2018; Lounsbery et al., 2013). Additionally, the S-PAPA is concerned about policies surrounding play and the impact of policies on promoting opportunities for physical activity. The GRF-OT does expand its focus from physical activity to other play behaviors with peers and appropriate use of materials; only one item on the GRF-OT evaluates teacher interaction with children during play, and two items assess behaviors that are included in risky play categories (Sandseter, 2009)- solving social conflicts with peers and appropriate, and 'safe' use of materials (Massey et al., 2018). An emphasis on safety is evident in both measures and any mention of risk is considered negative and dangerous; neither include perspectives on the developmental benefits of risky play.

One other tool is worthy of consideration, however, it is a protocol, not a measure. The Risk-Benefit Assessment (RBA) (Ball et al., 2012) was developed as a strategy for evaluating the

beneficial or detrimental consequences of environmental conditions that are considered risky. The protocol acknowledges that there are varying degrees of risk and many risky situations provide opportunities for child development of physical, social, and cognitive skills. While the Risk-Benefit Assessment documents the assessor's understandings of the pros and cons of risky play, it is a protocol for assessing the environment, designed to take place before play begins and does not capture teachers' subjective tolerance of risky play.

All three of these measures focus on the objective details of the playground environment; however, only the RBA assumes that children want to engage in risky play, and none evaluates teachers' perspectives of risky play. An understanding of risky play opportunities afforded by the environment alone is not enough; instead, adults must gain an understanding of how children want to spend their time on the playground which subsequently may assist teachers in identifying ways to support manageable risky play experiences.

### ***Measures of Children's Play on the Playground***

Researchers have developed systematic observation measures to evaluate what children do, both play and non-play, on the school playground. The System for Observing Play and Leisure Activity in Youth (SOPLAY) (McKenzie, 2002) assesses physical activity level and group size during play on the playground. The System for Observing Children's Activities and Relationships during Play (SOCARP) (Ridgers, Stratton, & McKenzie, 2010) evaluates children's physical activity, group size, types of play activities, and social behaviors during play on the playground. The System for Observing Outdoor Play (SOOP) (Engelen et al., 2017) measures any change in play following interventions or changes to the playground environment and also considers peer interaction, types of play activities, and group size. All three of these measures focus on children's play as the primary outcome and acknowledge social and physical

environmental variables, however, they emphasize how much a child is moving around on the playground over other important types of play or the quality of the play experience. Only the SOOP documents the location of children and the presence of teachers on a map, but it does not evaluate impact of teacher-child interaction on play behaviors. One key limitation of these measures is that they are time sampling techniques--a researcher documents one area of a playground in a snapshot of time. While this method is effective for understanding transactional relationships among children, the environment, and teachers by tracking patterns of play, group sizes, and materials, it only considers these briefly. None includes types of risky play and none evaluates teachers' (or children's) level of tolerance of risky play on the playground.

### ***Measures of Play for Children with Autism and/or Intellectual Disability***

Observation measures have been developed that are specifically intended to assess the play behaviors of children with disabilities, autism spectrum disorder (ASD) and intellectual disability (ID), on school playgrounds. In a recent study, Grady-Dominguez et al. (2019) described a new purpose-built iPad application intended to measure characteristics of play and play behaviors of children with ASD and ID on school playgrounds; the assessment produced psychometrically sound data. Like the three observational measures mentioned above, this measure uses a digitally-prompted time sampling technique but this measure does prompt examiners to document the play activities, social interactions between peers, and characteristics of the environment. This measure evaluates the difficulty of the physical and social characteristics of the playground environment and the ability of the environment to facilitate various complexities of play behaviors of children with disabilities, but it does not include risky play specifically. It also does not evaluate teachers' tolerance of the various play behaviors, which might reflect their risky play tolerance.

One playground observation measure specifically related to children with disabilities is the Playground Observation Checklist (POC) (Ingram, Mayes, Troxell, & Calhoun, 2007). Unlike the other measures in this section, this instrument is intended to aid members of a school disability assessment team in diagnosing children as having ASD or ID based on the play behaviors they demonstrate on the playground (Ingram et al., 2007). Children with autism have expected play behaviors according to past research and this measure has strong predictive power to diagnose autism based on those expectations. That being said, this instrument is not appropriate for evaluating a child with autism's preferred play activities on the playground because it does not document preferences. Furthermore, this instrument, like others, does not include risky play activities and does not evaluate teachers' levels of risky play tolerance. Both of these features could help promote opportunities for children with ASD and ID to engage in developmentally beneficial risky play experiences.

**Table 2.2***Observational Measures of the School Playground*

Instrument (Author)	Age	Purpose	Description	Psychometrics
<b>School Play Environment</b>				
<b>School Physical Activity Policy Assessment (S-PAPA)</b> (Lounsbery et al., 2013)	Primary school	Measure school policy and environmental variables related to the quantity and quality of physical activity in children at school.  To be completed by school PE teachers	Items include: - background questions (7 items) - physical education (47 items) - recess (27 items) - other before, during, after school programs (15 items)  Open-ended, dichotomous, multichotomies, and checklist	89/96 items w/ moderate to almost perfect agreement (Kappa = 0.42–0.87)  7/96 items w/ fair agreement (Kappa = 0.13–0.39)
<b>Great Recess Framework Observational Tool (GRF-OT)</b> (Massey et al., 2018)	Primary school	Observational tool to assess the quality of the playground context (environmental, social, behavioral) and the behaviors that take place during recess	17 items of recess environment: safety and structure, student behaviors, adult engagement/supervision, transitions.  4-point scale	Significant overall ( $p < 0.001$ )  Convergent validity: structure and safety ( $p < 0.001$ , $\beta = 0.272$ ) adult engagement/supervision ( $p < 0.001$ , $\beta = 0.246$ ) student behaviors ( $p = 0.024$ , $\beta = 0.102$ ) interrater reliability:



				strong agreement with an ICC (2,1) of 0.951 (95% CI, 0.932, 0.964).
				Test-retest reliability: (ICC = 0.949, 95% CI, 0.882, 0.979) w/ 3-day average across 2 time point
<b>Risk-benefit Assessment</b> (Ball et al., 2012)	n/a	Protocol to evaluate the potential risks and associated benefits of environmental conditions and play activities on playgrounds. Used to determine if play policy needs to change to mitigate risk.  Teachers, school admin, policy makers	Four levels: (1) policy framework, (2) risk-benefit assessment, (3) technical inspection, (4) dynamic risk-benefit assessment.  Keep detailed documentation of evaluation of risks and associated benefits to make judgements about the play.	Not reported
Children's Play on the Playground				
<b>System for Observing Play and Leisure Activity in Youth (SOPLAY)</b> (McKenzie, 2002)	School-aged (K-12)	Systematic observation tool to measure the number of students and their levels of physical activity during play on the playground	Momentary time sampling technique: observe activity of participating children ('sedentary', 'walking', or 'very active' and type of activity), alternating boys/girls  Contextual conditions: time, temp, area/ equipment accessibility, presence of supervision, presence/ type of organized activity	Interrater reliability: contextual variables = 88-97% intraclass correlations = 0.76 - 0.98  Interobserver agreements: (IOA=80%)  Intraclass correlations: (R=0.75)

<b>System for Observing Children's Activities and Relationships during Play (SOCARP)</b> (Ridgers et al., 2010)	School-aged (K-12)	Systematic observation tool to assess children's physical activity, social group size, types of activities, and social behaviors during play	Time sampling technique: 10 sec observation followed by 10 sec record period for each child	Interrater reliability = 88-90%  Concurrent validity with accelerometry = $r = 0.67$ , $p < 0.01$
<b>System for Observing Outdoor Play (SOOP)</b> (Engelen et al., 2017)	Primary school-aged	Systematic observation instrument to assess changes in social and creative play and use of loose parts materials. Documented: number of children playing together, number of children in an area, types of activities/play  Assess play and non-play activities, groups, number of children playing together, and presence of teachers.	Counter-clockwise scanning areas of playground 1 x/ min for 20 min recorded on map: - number of kids (boys/girls) - presence of teachers  10 categories (active play; construction; creative/imaginative play; eating, moving-not playing; inactive (sitting or standing) play; inactive – not social (alone or no interaction); and inactive – social, sports)	Interrater reliability = 95%
Play for Children with ASD / ID				
<b>*Purpose-built iPad application to measure what children do on the playground</b> (Grady-Dominguez et al., 2019)	Primary school-aged	Observation tool to measure characteristics of play and play behaviors of children with autism and intellectual disabilities on the school playground	19 item tool Researcher scored one quadrant of the playground at a time, moving clockwise	Infit MnSq = 0.83-1.19 Outfit MnSq = 0.46-1.45  Point Measure Correlation = 0.11-0.61  Test reliability = 0.60-0.67  Session separation index = 1.23

<b>Playground Observation Checklist (POC)</b> (Ingram et al., 2007)	5 – 11 years	Assess children’s play and social behaviors in playground environments	Completed by members of school assessment team.	Interrater reliability: 100%  (F = 102.7, p < 0.0001)  Positive predictive power for autism: 69%  ‘Uses playground equipment functionally’ did not differentiate between groups ( $\chi^2 = 0.3-4.2$ , p > 0.04)
		Tool to aid identification of children with disabilities (ASD and ID)	10 item checklist (engages in social play; not socially isolated; respects boundaries/personal space; not exhibit socially inappropriate behavior; follows game rules; responds to winning/losing; initiates conversation w/ peer; sustains conversation w/ peer; does not exhibit gross motor incoordination; uses playground equipment functionally)  Dichotomous scale (‘present’ or ‘absent’)	

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\*This instrument fits within two categories: child’s play/ play behaviors and play of children with ASD / ID

## **Conclusion**

My review identified a glaring gap in appropriate available tools to assess teacher tolerance of risky play in a school setting. Few existing measures have a positive perspective of risky play and consider the potential benefits risky play can have on child development (Olsen et al., 2018; Prezza et al., 2005). Many measures identify the cause of risk and injury as originating within the behaviors of the child or parent and categorize risk as a negative, dangerous, and an inevitable precursor to child injury (Morrongiello & Corbett, 2006; Morrongiello, Corbett, & Kane, 2011; Will et al., 2009). This latter category of measures assumes all possibilities of engaging with risk must be limited, or better, eliminated.

In addition to measures of attitudes towards risky play, I evaluated several playground observation measures in an attempt to identify any that could provide insight into the transaction between children's play and characteristics of the environment, available materials, opportunities for peer interaction, supervision, and activities. Only one protocol for evaluating the play environment included an assessment of the possible benefits and detriments of risk and risky play (Ball et al., 2012). Other playground-specific measures are intended to assess activity levels, types of play, and social interactions of children during recess, but do not identify opportunities for risky play (Engelen et al., 2017; Grady-Dominguez et al., 2019; Massey, Stellino, Hayden, & Thalken, 2019; McKenzie, 2002; Ridgers et al., 2010). I found only two observation measures specific to children with disabilities for use on school playgrounds (Grady-Dominguez et al., 2019; Ingram et al., 2007). One measure is intended to aid in diagnosis of ASD or ID through observation of play on the playground and is therefore not relevant to my research questions. One playground measure specifically evaluates the school's play policies related to child play behaviors and availability of play resources, but it does not assess teacher tolerance of risk or the

impact of teacher tolerance on children's opportunities for risky play (Lounsbery et al., 2013).

While many available playground observation measures consider the characteristics of the environment in relation to play, they fail to consider the role of the environment in providing opportunities for manageable risky play.

Available research on risky play advocates for offering manageable risky play experiences to children of all abilities on the school playground, but also identifies teacher risk aversion, fear, and lack of understanding of how to offer manageable risks as a barrier to this important developmental opportunity (Ball et al., 2012; Brussoni, Brunelle, et al., 2015; Brussoni et al., 2012; Little et al., 2012; Sandseter, 2011; Sandseter, 2012, 2014; Wyver et al., 2010). Unfortunately, there are no measures currently available that appropriately evaluate teacher tolerance of risky play on the school playground in order to help teachers reframe their understanding of risk and develop strategies for implementing safe risky play. The shortcomings of available measures indicate there is a gap in the literature- there is a need for a new measure for primary school teachers, in reference to children of all abilities, and one that is appropriate for use in the unique physical, social, and behavioral context of a school playground. The Teacher Tolerance of Risk in Play Scale (T-TRiPS) was developed from the original TRiPS (Hill & Bundy, 2014) to fill this gap and establish a means for evaluating teacher tolerance of risk in play. This instrument must be evaluated to determine if the data produced suggests evidence for construct validity and reliability. A psychometrically sound instrument to measure teacher tolerance of risk in play will help increase opportunities for risky play experiences for children and help teachers feel confident in their facilitation of such play.

## CHAPTER 3

### JOURNAL ARTICLE

#### Teacher Tolerance of Risk in Play Scale (T-Trips):

#### Evaluating the Psychometric Properties of a New Measure

Much of children's active play inherently holds the possibility of minor injuries, like bumps and bruises, and thus is considered to be "risky." Risky play includes exciting and thrilling activities, involves exploration of physical and social environments, and includes exploration of emotions and perceptions of the world (Ball, 2002; Kleppe et al., 2017; Lester & Russell, 2014; Sandseter, 2009). Because risky play includes potential injury, it requires children and adults to accept uncertainty and relinquish control (Ball, 2002; Kleppe et al., 2017; Lester & Russell, 2014; Sandseter, 2009).

Previous researchers have identified the following risky play categories: (a) great heights, (b) high speeds, (c) dangerous tools, (d) dangerous elements, (e) rough-and-tumble, (f) disappear/get lost, (g) play with impact, and (h) vicarious risk (Kleppe et al., 2017; Sandseter, 2009). The above categories focus on physical play; however, other risky play activities exist that do not fit within these categories such as challenges during social problem solving or experimenting with a child's own perceptions of their abilities.

While many adults attempt to avoid any possibility of injury for children, engaging in risky play promotes development including physical activity, executive functioning, skills for social interaction, problem-solving, creativity, self-efficacy, and self-esteem (Brussoni, Gibbons, et al., 2015; Brussoni et al., 2012; International School Grounds Alliance, 2017; Wyver et al., 2010). Children of all abilities develop an understanding of their own skills and boundaries through opportunities to independently manage play (Ball, 2002). Challenging play experiences

help children become aware of, and increase their competencies for, managing risky situations without relying on adults (Brussoni, Brunelle, et al., 2015; Bundy et al., 2015).

### **Imbalance of Duty of Care and Dignity of Risk: A Barrier to Development**

Duty of care refers to a teacher's responsibility to protect children from harm. Alternatively, dignity of risk implies the right to gain skills to manage risk and develop autonomy (Wolfensberger et al., 1972). At school, recess provides an essential opportunity for play that supports development of autonomy (Bundy et al., 2015; Hyndman, 2015; Ramstetter et al., 2010). However, teachers' fears of liability (Newnham, 2000; Niehues et al., 2013) often lead to play supervision practices that reflect an imbalance between duty of care and dignity of risk.

Over-emphasis on duty of care results in teachers attempting to eliminate risky play on playgrounds (Spencer et al., 2016). Even though many teachers recognize benefits associated with risky play, fear of the consequences of child injury often results in attempts to eliminate any form of risk, no matter how minor, without regard for possible benefits (Little, 2016; Wyver et al., 2010). Consequently, children miss opportunities to experience its benefits (Ball et al., 2019; Newnham, 2000; U.N.C.R.C., 1989). While most people who work with children have children's best interests at heart and enact protection strategies with good intentions, teachers' tendency towards surplus safety, fear of social consequences and lack of understanding of the benefits often threaten children's right to engage in risky play.

### **Risky Play for Children with Disabilities**

Risky play situations on school playgrounds are especially limited for children with disabilities. Children with disabilities, particularly those with cognitive limitations such as judgement, inhibition management, and problem solving (e.g., children with autism spectrum disorder [ASD] or intellectual disability [ID]), often experience greater interruptions to

developmentally important risky play than do their typically-developing peers (Bundy et al., 2015).

In order to develop the important skills associated with risky play, children with disabilities require repeated exposure to a variety of situations with ever-increasing levels of difficulty (Bundy et al., 2015). Thus, risky play is especially important for children with disabilities (Bundy et al., 2015; Gilman, 2007). Nonetheless, despite its benefits, many adults perceive risky play as dangerous, unnecessary, and offering only negative consequences, particularly for children with disabilities. Low tolerance of risky play leads adults to limit opportunities for these developmentally meaningful play experiences (Beetham et al., 2019; Bundy et al., 2015; Little et al., 2012; Scott, Jackson, & Backett-Milburn, 1998)

In a study of teachers' responses to risky play while supervising children with disabilities on the playground, Spencer et al. (2016) found that adults often justified their interruptions of play by citing duty of care coupled with the perception that children with disabilities are incapable of managing risky situations or understanding the consequences of their actions. Findings from this study suggested not only that teachers view a child's disability as a potential risk for injury but also that teachers are strongly influenced by fears of social consequences such as having to report injuries to parents or being perceived as negligent (Spencer et al., 2016). Consequently, teachers often determine safety rules based on the least capable child in the group and apply these to the entire group, eliminating any opportunity for children to develop new risk management skills regardless of individual children's varying capabilities (Ball et al., 2012; Bundy et al., 2015).

### **Risk-Benefit Assessment: Teachers**

Risk-benefit analysis allows teachers to consider the benefits and dangers of various play



situations. Ball and colleagues (2012) defined a difference between “good risks” (i.e., experiences that hold developmental value and have few unforeseen negative outcomes) and “bad risks” (i.e., experiences that are too complex for children to assess independently and have no developmental benefit like broken, sharp objects). Opportunities for good risk not only promote development but help to mitigate injury. Attempting to mitigate or eliminate risk not only has negative consequences for development, but often results in boredom, leading children to seek out exceedingly risky play (Brussoni, Brunelle, et al., 2015; Brussoni et al., 2012; Christensen & Mikkelsen, 2008; Wyver et al., 2010). Thus, risk avoidance strategies can result in more serious injury than supporting children to manage risks through appropriate risky play opportunities.

### **Assessing Teachers’ Tolerance of Risky Play: Instrument Development**

Teachers are the gatekeepers of children’s opportunities for, and access to, risky play at school. Healthy teacher tolerance of risky play is important for promoting developmental opportunities on the playground. A valid and reliable instrument to accurately measure teacher tolerance of risky play would help teachers understand their risk tolerance and measure change as needed. A review of available literature revealed few instruments to evaluate adult caregivers’ perceptions of risky play, and none to measure teachers’ tolerance. One instrument, the Tolerance of Risk in Play Scale (TRiPS) (Hill & Bundy, 2014), measures parents’ tolerance of risk in play. While the TRiPS produced valid and reliable data for parents, it is not suitable for use with teachers as many items do not reflect the kind of play that occurs at school (Hill & Bundy, 2014). Therefore, the purpose of this study was to examine evidence for construct validity and reliability of the Teacher Tolerance of Risk in Play Scale (T-TRiPS).

## **Method**

This study was part of a larger investigation known as the Sydney Playground Project (SPP) (Bundy et al., 2015). SPP comprised two interventions: risk reframing for adult participants and addition of loose materials to the school playground. Approval for this research was granted by the Human Research Ethics Committee at The University of Sydney and the trial was registered with the Australian and New Zealand Clinical Trial Registry (#ACTRN12614000549628) (Bundy et al., 2015).

### **Participants**

A total of 99 preschool and primary school teachers of children, ages 4-12 years and diagnosed with ASD and/or ID, completed the instrument. Teachers ranged in age from younger than 20 years to older than 56 years and included lead and assistant teachers. Duration of teachers' experience teaching children with disabilities ranged from 4 months to 29 years ( $M = 10.14$ ;  $SD = 4.99$ ). See Table 3.1. Of the 99 participants, 48.4% reported growing up in Australia.

**Table 3.1***Teachers' years of experience and age of students*

Teacher Experience	N	Student Ages	n
< 1- 4 yrs.	30		
		4 - 6 yrs.	3
		7 - 9 yrs.	10
		10 - 12 yrs.	4
		multiple	13
5 - 9 yrs.	29		
		4 - 6 yrs.	4
		7 - 9 yrs.	9
		10 - 12 yrs.	2
		multiple	14
10 -19 yrs.	28		
		4 - 6 yrs.	7
		7 - 9 yrs.	6
		10 - 12 yrs.	1
		multiple	14
≥ 20 yrs.	11		
		4 - 6 yrs.	1
		7 - 9 yrs.	1
		10 - 12 yrs.	2
		multiple	7
unknown	1		
		7 - 9 yrs.	1

*Note:* Teacher experience M=10.14; SD=4.99

### **Instrument**

The T-TRiPS includes 25 items with dichotomous answers (find abbreviated items Table 3.2 and full instrument in the Appendix) and 5 short answer questions probing teachers' personal experiences of risky play. Items reflect the six categories of risky play identified by Sandseter (2009) (great heights, high speed, dangerous tools, dangerous elements, rough-and-tumble, disappear/get lost). The instrument can be completed in approximately 15 minutes and is typically is completed while teachers are not on the playground but considering the play of the

children in their classroom.

The Teacher Tolerance of Risk in Play Scale (T-TRiPS) was adapted from the original Tolerance of Risk in Play Scale (TRiPS) (Hill & Bundy, 2014) by modifying or removing items as they apply to the context of the teacher. The T-TRiPS items reflect activities teachers commonly supervise their students doing during a school day. The TRiPS produced valid and reliable data. All items fit the expectations of the Rasch model and unexplained variance in a principal components analysis of residuals was only the strength of about 2 ½ items, demonstrating good evidence for unidimensionality (construct validity). Reliability of TRiPS data was demonstrated by a person reliability index of .87 and a person separation index value of 2.63, indicating the instrument is capable of separating participants into >2 levels of risk tolerance.

**Table 3.2***T-TRiPS items and corresponding Categories of Risky Play (Sandseter, 2009)*

T-TRiPS items	Categories of Risky Play
1) Play in classroom unsupervised?	Disappear/ get lost
2) Play chase with one another?	Rough & tumble play
3) Go head-first down a dip/slide?	High speeds / rough & tumble
4) Continue playing after a scrape?	Rough and tumble
5) Challenging activities if may fail?	
6) Climb a tree within your reach?	Great heights
7) Run in a place with open fire/ heater?	Dangerous elements
8) Play-fight with sticks?	Dangerous tools
9) Walk on slippery surface if may fall?	Dangerous elements
10) Use 'adult tools' unsupervised?	Dangerous tools
11) Engage in rough and tumble play?	Rough & tumble
12) Jump down a height of 3-4 meters?	Great heights
13) Care for pets in the classroom?	
14) Swim close to the pool edge?	Dangerous elements
15) Resolve disagreements push/poking?	Rough & tumble play
16) Play on equipment may break bone?	
17) Play-fight, testing who is strongest?	Rough & tumble play
18) Wait to see how manage challenges?	
19) Ride a toy/bicycle down a steep hill?	High speeds
20) Climb as high as they want in a tree?	Great heights
21) Play in playground unsupervised?	Disappear / get lost
22) Resolve disagreements shouting?	
23) Go new environment alone if watch?	Disappear/ get lost
24) Balance on surface 2 meters high?	Great heights
25) Encourage to take risks if fun?	

**Procedure**

Participants completed the T-TRIPS during the pre-intervention phase of SPP risk reframing workshops. Teachers chose between an electronic (iPad with the instrument administered via Survey Monkey) and pencil-and-paper versions of T-TRIPS. A research assistant entered data from paper assessments into the Survey Monkey platform.

## **Data Analysis**

Rasch analysis was employed using Winsteps version 4.3.1 software (Linacre, 2018) to transform raw data to interval-level data and examine the evidence for construct validity and internal reliability. The analysis reveals the degree to which data from items and people fit the assumptions of the Rasch model. As applied to this study, (1) easier items (reflecting less risk) are easier for all people to approve; and (2) participants with greater tolerance will be more likely to endorse more risky items than people with less tolerance (Bond & Fox, 2015).

### ***Construct Validity***

Rasch allows for consideration of one human attribute, or latent trait, (i.e., the “construct,” in this case, tolerance of risky play). The model organizes items and people along a single continuum based on strength of the latent trait within each item and person (Bond & Fox, 2015). Several findings from Rasch analysis were examined. To determine if data from individual items corresponded positively with total measure scores, point measure correlations (PMC) were examined and only items with positive PMCs, indicating the items contribute positively to the construct, were retained. Goodness of fit statistics, expressed in mean square (*MnSq*) and  $z$  (*ZSTD*) values, provide evidence of the degree to which the items conform to the expectations of the Rasch model. *MnSq* values between 0.5 and 1.5 and *ZSTD* values  $\pm 2$  were accepted; the researchers expected that 95% of items would meet those criteria.

To determine the degree to which the range of T-TRiPS item difficulty matched the range of teacher tolerance, the Wright Map - a visual representation of the item and person hierarchies- was examined. The researchers expected to find similar item and participant means and ranges and small gaps between item difficulty. Large gaps in the item hierarchy suggest that the items do not adequately cover the range of risk tolerance observed in the sample population and

cannot, therefore, yield precise measurement of teacher tolerance at the level of a gap.

Correspondingly, items that are very close together along the construct represent a similar level of risk tolerance and may therefore provide redundant information. See Figure 3.1. The researchers also examined the hierarchy of the items to determine if they represent a logical progression, as suggested in related literature.

In order to test the strength of any additional dimensions in the data, Winsteps provides a principal components analysis of standardized model residuals (PCA). Eigenvalues associated with each contrast reveal the strength of a second underlying construct. Eigenvalues less than 3 (i.e., the strength of three items) were accepted as evidence that any underlying construct is not large enough to distort the main construct, indicating unidimensionality.

### ***Internal Reliability***

Two sources of evidence for internal reliability were considered: strata, calculated from the person separation index, and the person reliability index. Strata indicate the levels of teacher tolerance of risky play revealed in the data; at least two levels are needed. Strata were calculated using the equation  $(H = (4G+1)/3)$ , where  $H$  = strata and  $G$  = person separation index. The person reliability index, a Rasch equivalent to Cronbach's alpha, suggests the ease with which measures would be reproduced with a similar sample. Person reliability index scores  $\geq 0.8$  were accepted.

## **Results**

The evidence for construct validity of the data was excellent. Specifically, each item correlated positively (PMC) with overall measure scores. (See Table 3.3). Further, goodness of fit statistics for all 25 items were within the acceptable range, indicating that the items conform to the expectations of the Rasch model.

**Table 3.3***Rasch Output for T-TRiPS Items*

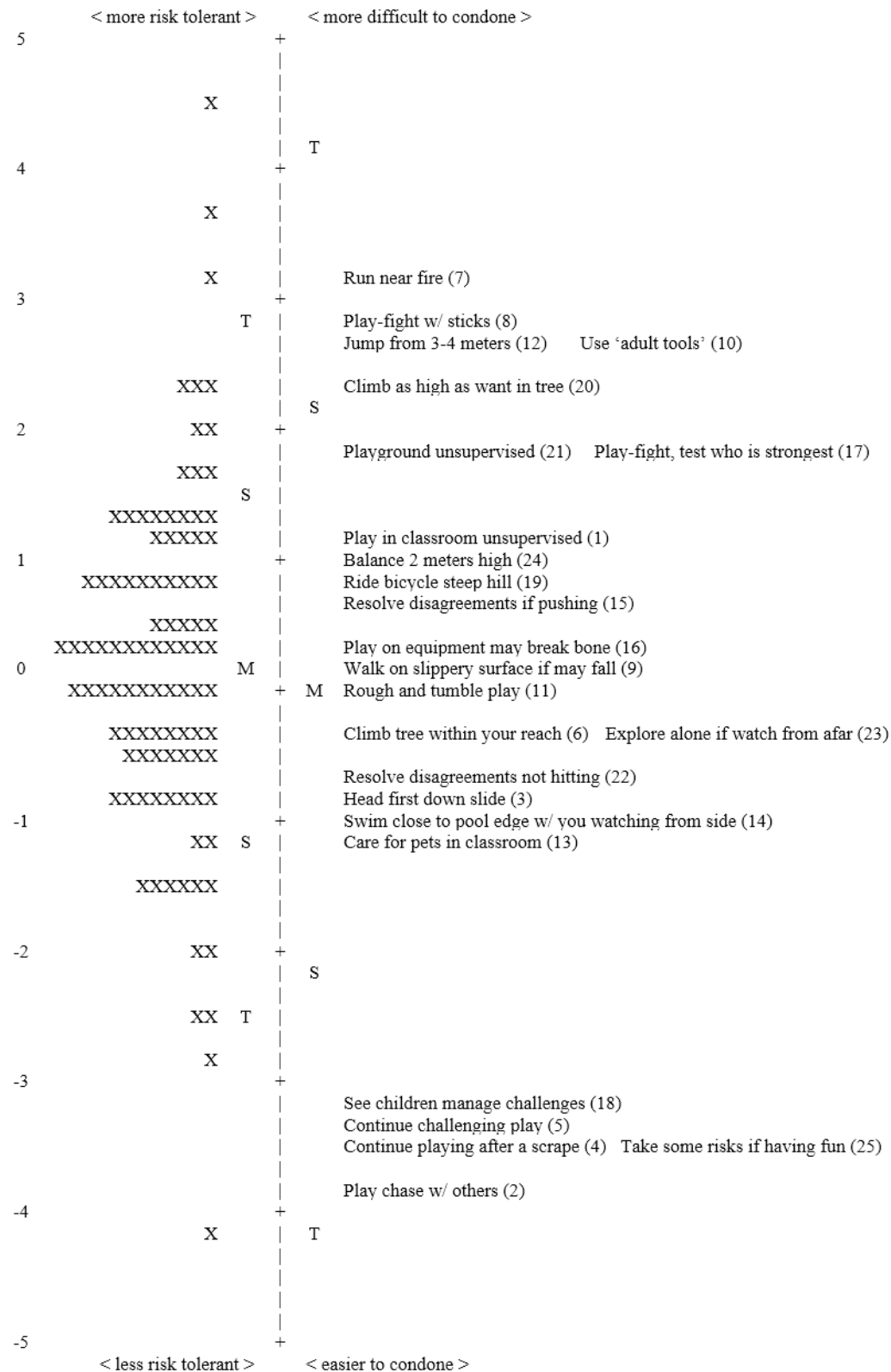
Item description	Meas.	S.E.	PMC	Infit		Outfit	
				MnSq	ZSTD	MnSq	ZSTD
1) Play in classroom unsupervised?	1.09	0.24	0.27	1.26	2.24	1.47	1.76
2) Play chase with one another?	-3.76	0.55	0.31	0.81	-0.32	1.49	0.78
3) Go head-first down a dip/slide?	-0.77	0.24	0.50	0.94	-0.52	0.85	-0.53
4) Continue playing after a scrape?	-3.49	0.50	0.32	0.90	-0.14	0.79	-0.03
5) Challenging activities if may fail?	-3.26	0.46	0.15	1.15	0.52	1.60	0.96
6) Climb a tree within your reach?	-0.26	0.23	0.46	1.00	0.03	1.04	0.27
7) Run in a place with open fire/ heater?	3.11	0.39	0.34	1.04	0.23	0.83	-0.11
8) Play-fight with sticks?	2.84	0.36	0.25	1.16	0.71	1.37	0.80
9) Walk on slippery surface if may fall?	0.11	0.23	0.54	0.88	-1.37	0.85	-0.73
10) Use 'adult tools' unsupervised?	2.60	0.33	0.45	0.94	-0.22	0.62	-0.79
11) Engage in rough and tumble play?	-0.05	0.23	0.55	0.88	-1.31	0.79	-1.10
12) Jump down a height of 3-4 meters?	2.72	0.34	0.36	1.00	0.10	1.21	0.56
13) Care for pets in the classroom?	-1.15	0.26	0.30	1.23	1.65	1.22	0.75
14) Swim close to the pool edge?	-0.96	0.25	0.45	1.02	0.21	0.85	-0.45
15) Resolve disagreements push/poking?	0.69	0.23	0.43	1.07	0.71	0.97	-0.07
16) Play on equipment may break bone?	0.32	0.23	0.34	1.20	2.11	1.26	1.29
17) Play-fight, testing who is strongest?	1.88	0.28	0.38	1.09	0.61	0.98	0.06
18) Wait to see how manage challenges?	-3.24	0.46	0.30	1.01	0.16	0.78	-0.10
19) Ride a toy/bicycle down a steep hill?	0.79	0.24	0.46	1.01	0.17	0.91	-0.38
20) Climb as high as they want in a tree?	2.39	0.31	0.53	0.80	-1.00	0.55	-1.12
21) Play in playground unsupervised?	1.87	0.28	0.52	0.86	-0.98	0.70	-0.86
22) Resolve disagreements shouting?	-0.68	0.24	0.43	1.02	0.21	1.19	0.80
23) Go new environment alone if watch?	-0.34	0.24	0.55	0.86	-1.42	0.80	-0.94
24) Balance on surface 2 meters high?	1.02	0.24	0.56	0.83	-1.64	0.76	-1.02
25) Encourage to take risks if fun?	-3.47	0.50	0.44	0.78	-0.50	0.27	-1.11

As shown in Figure 3.1, the mean of item difficulty and teacher tolerance were similar (item mean = 0; person mean = 0.19); while the person range (-4.09 – 4.56) was greater than the item range (-3.76 – 3.11), most teachers' scores fell within the item range. Items expected to be more difficult to endorse did, in fact, earn higher measure scores, indicating logic of the construct. See Table 3.3. However, some gaps existed along the item hierarchy and 8 items



achieved the same level of difficulty (i.e., located on the same line), suggesting item redundancy. The PCA revealed that person and item measures explained 48.5% of variance in TRiPS scores. After removing the Rasch construct, the largest remaining contrast had an eigenvalue of 2.29, providing sufficient evidence for unidimensionality of the construct.

The evidence for internal reliability was also strong. T-TRiPS data yielded 3.01 strata, suggesting that the instrument reliably discriminated more than 3 levels of tolerance of risky play. Winsteps generated a person reliability index of 0.80.



Note: M= mean; S= 1 standard deviation from the mean; T= 2 standard deviations from the mean; X= participant

**Figure 3.1. T-TRiPS Person-Item Map (Wright Map)**

## Discussion

The purpose of this study was to examine construct validity and internal reliability of data collected with T-TRiPS, an instrument to measure teacher tolerance of risky play. Results suggested the strength of the instrument; all items contribute to a logical unidimensional construct. Specifically, Rasch analysis revealed that all items form a logical hierarchy and yielded acceptable goodness of fit statistics.

The T-TRiPS item hierarchy reflected risky play literature. Items located toward the top of the construct (Figure 3.1) are, understandably, much more difficult for teachers to endorse (i.e., “run in a place with an open fire”, “use adult tools unsupervised”, and “climb as high as they wanted in a tree”). Our findings supported Cevher-Kalburan’s (2014) research in which many teachers identified children’s play with “dangerous tools” and “dangerous elements” as more difficult to endorse than other risky play activities. Endorsing items located in the middle of the T-TRiPS construct (i.e., “ride a bicycle down a steep hill”, “walk on a slippery surface”, “rough and tumble”, “climb a tree within your reach”, and “resolve disagreements independently if not hitting”) requires moderate risk tolerance. Endorsing items at the bottom of the hierarchy, represented in Figure 3.1, (i.e., “continue playing challenging activities if they may not succeed?”, “continue playing after a scrape”, and “play chase with one another”) requires very little risk tolerance. A teacher whose measure score is at the bottom of the range is quite risk averse and may benefit from intervention to increase their tolerance.

Findings from a study of teacher responses to uncertainty while supervising children with disabilities on the playground suggested teachers have greater difficulty tolerating risky play in groups of children compared to risky play by a single child (Spencer et al., 2016). Interestingly, according to the item hierarchy represented in Figure 3.1, group play items were fairly evenly

distributed along the continuum with some like “play chase with others” fairly easy to endorse, others involving social problem-solving like “resolving disagreements” both with and without physical contact and “rough and tumble play” posing moderate difficulty to endorse. Supporting the findings of Spencer et al. (2016), Cevher-Kalburan (2014) found teachers are uncomfortable with possible consequences of risks, especially “hurting themselves and peers”. The two difficult-to-endorse play-fight items support this research as they are located at the top of the hierarchy and require significant risk tolerance.

Several items are located on the same line along the construct indicating that endorsing them requires the same level of risk tolerance. However, the items represent different categories of risky play, therefore, we recommend retaining all items. For example, the items “go headfirst down a slide” and “resolve disagreements independently if not hitting” are located on the same difficulty level. While these two items require the same level of tolerance of risk to endorse, they offer substantially different information.

Findings demonstrated the T-TRiPS is able to separate participants into three levels of risk tolerance: high, moderate, and low. This strength of the T-TRiPS to determine the level of a teacher’s tolerance of risky play will allow researchers and interventionists to differentiate between participants more precisely than simply determining who is more or less tolerant. The ability to identify risk averse teachers from those with moderate and even high tolerance will allow interventionists and researchers to prioritize interventions as well as more precisely measure change in the future. Additionally, the strong person reliability index indicated researchers can expect future research with new participants (e.g. teachers of children of varying abilities or from different regions of the world) will yield similar results.

## **Recommendations to Strengthen T-TRiPS**

Findings from this research serve as evidence of the strength of the T-TRiPS as a valid and reliable instrument that will provide researchers and practitioners with the important opportunity to measure teacher tolerance of risk in play. The following recommendations for improving this already strong instrument will support accuracy of measurement and provide opportunities for continued research.

While items are logically distributed along the construct, there is one notable gap along the hierarchy (Figure 3.1) suggesting addition of new items is warranted. Gaps in item distribution represent points where precise measurement of a teacher's tolerance is not possible. The most concerning gap is located approximately 1 standard deviation below the item mean (0.0) between item 13, "care for pets in classroom," and item 18, "wait to see how students manage challenges before getting involved." Several participants have risky play tolerance at the same level as this gap, represented in Figure 3.1 by 'X', indicating they were not measured precisely. Participants at this level of the construct are fairly intolerant of risks and could therefore be an appropriate target group for intervention to improve risk tolerance. Introduction of new items or modifying existing items to fill these gaps will improve measurement precision and support intervention (Bond & Fox, 2015).

Another example of a gap, but one that is not very concerning, is located nearly one standard deviation above the item mean (S), between item 21, "play on the playground unsupervised," and item 1, "play in classroom unsupervised." Because participants adjacent to this gap (and the two smaller gaps above) are already fairly risk tolerant, there is less need to create additional items to fill these gaps.

Many T-TRiPS items reflect the categories of risky play identified by Sandseter (2009), see Table 3.2. However, the item “use adult tools unsupervised” is the only item representing the category “dangerous tools” and is located more than one standard deviation above the mean indicating it is fairly difficult to endorse. Another easier item representing this category would be beneficial.

Kleppe et al. (2017) defined two new risky play categories, “play with impact” and “vicarious risk” after this instrument was developed; therefore, these categories are not represented. Assuming such items fit within the same unidimensional construct, new items representing these categories as well as items reflecting social, emotional, and intellectual risk, might provide more thorough information on teacher tolerance of risk in play. Including new, non-physical items in the T-TRiPS (e.g. social conflict or trying novel activities) could support the growing body of knowledge of risky play. This research is especially important as children with disabilities may struggle with these types of play and would benefit from opportunities to engage in these types of risky play activities (Bundy et al., 2015).

An additional opportunity to improve the T-TRiPS lies in modifying the language of the instructions to consider the majority of students. Currently the instructions state “Think about what you would do for the majority of your students when responding to each question” (see Appendix). While the concept of considering the majority is clear enough, we do not know the extent to which teacher responses were influenced by the least capable students. Safety rules are often determined by the capabilities of the least skilled child in the group with blanket expectations given to the whole. “If this child cannot do a particular activity, then no one should be allowed to do it.” With more restrictions on play, more skilled children may seek excessively risky situations to combat boredom, resulting in injury. I propose modifying the instructions of

the T-TRiPS (Appendix) from “think about the majority of your students” to something more explicit like “think about the majority of your students excluding the most and least capable” and include “majority of students” within each T-TRiPS item. This simple modification will help guide teachers to consider the whole group when completing the T-TRiPS and consider the individual skills in risk-benefit assessment to improve risk tolerance.

### **Limitations**

While findings from this research provide strong evidence that the T-TRiPS produces data that are valid and reliable, like all research, this study had limitations. Firstly, the sample used in this study is fairly small and only included teachers of children with ASD and/or ID. Additional research is needed with a broader range of teachers of children both with disabilities and those who are typically developing. Secondly, the T-TRiPS used in this study did not ask for teacher or student gender. Not knowing if participants and children were male or female prevented us from determining the extent to which gender was a factor in teacher tolerance of risk. Sandseter (2014) indicated male teachers experience greater excitement when engaging in risks and are therefore more risk tolerant than female teachers. Additionally, adults are often more tolerant of risky play by male children than female children (Sandseter, 2014).

### **Implications for Future Research**

Future research is needed to create additional items and subsequently ensure the revised T-TRiPS produces data that represent a unidimensional construct. Another possible opportunity for future research lies in creating an abbreviated version of the T-TRiPS to use as a screening tool. Participant scores on a brief screening tool could help researchers, interventionists, and teachers identify those at greatest risk of hindering children’s right to risky play and therefore those most appropriate for in-depth assessment and intervention.

## **Conclusions**

The strength of these findings suggest the T-TRiPS can be used not only to help teachers understand their own risk tolerance, but also as a basis for intervention to help them shift perspectives and increase risk tolerance. Items located just above a teacher's tolerance level can provide opportunities for goals and ideas for intervention to improve risk tolerance. Additionally, these findings suggest T-TRiPS could be used in future research to provide insights into short- and long-term impacts of varying degrees of risk tolerance on child development.



## CHAPTER 4 REFLECTIONS AND CONCLUSIONS

Completing this thesis not only reinforced many concepts from my coursework but also provided me with knowledge and skills that will strengthen my future career as an occupational therapist. Through this research I have learned that several factors influence teacher tolerance of risk in play as well as the importance of advocating for opportunities to engage in risk for all children through compassionate education of teachers. This research is an important step towards increasing children's access to their right to experience risky play.

Several notable findings support Teacher Tolerance of Risk in Play Scale (T-TRiPS) as an instrument that produces psychometrically sound data. All items measure a unidimensional construct of tolerance of risk in play. A variety of play activity items represent a hierarchy of difficulty ranging from 'easy to endorse' to 'difficult to endorse.' The placing of these items along the hierarchy is consistent with previous risky play research and is representative of activities teachers often supervise on the playground. T-TRiPS reliably discriminated more than three levels of tolerance of risky play (low, moderate, and high) which may make it sensitive to change as a result of interventions aimed at increasing teacher tolerance of risk.

The ability to measure teacher tolerance of risk in play has important implications for child development and opens several opportunities for children of all abilities. Children with disabilities often are considered more vulnerable than their typically developing peers, increasing the already over-protective practices of teachers designed to prevent injury on the school playground (Spencer et al., 2016). Being able to assess a play opportunity and decide how to engage while best managing risk is a protective factor; children with that ability have learned the boundaries of their own skills (Brussoni et al., 2012; Christensen & Mikkelsen, 2008).

Adults are responsible for providing opportunities for development through play, however adults' misunderstanding of risky play, perceptions of the limited abilities of children, and fear of consequences to themselves as well as children interfere with their providing risky play opportunities (Ball et al., 2019; Brussoni, Brunelle, et al., 2015; Lester & Russell, 2014; Spencer et al., 2016). T-TRiPS can help adults reflect on their own tolerance of risk and may ultimately help them shift these perspectives and increase opportunities for risky play experiences.

### **Future Research**

While findings from this research demonstrated the strength of this instrument, there are a few opportunities for modification to improve the instrument. One notable gap is present in the item hierarchy at a level that would require fairly low tolerance of risk in play to endorse items. The lack of items in this region of the hierarchy makes it impossible to precisely measure teachers whose tolerance falls in this general range. Therefore, I propose new items be added to fill this gap. Through my review of risky play literature and reviewing the results, I also propose adding new items that represent risky play categories 'play with impact' and 'vicarious risk' that Kleppe and colleagues identified after the T-TRiPS was developed. Additionally, I would modify some existing items to be either easier or more difficult to endorse by adjusting characteristics like level of adult supervision (e.g. "use adult tools while you are close by" or "use adult tools while you provide hand-over-hand support") and involvement of peers (e.g. "go head-first down a slide without peers close by" or "go head-first down a slide with peers playing at the bottom"). I also would modify the instructions of the instrument to help participants consider the whole group of children rather than the least or most capable child in their care. This effort may help shift away from the tendency to make safety rules for the group based on the capabilities of one

child. I would include an opportunity for participants to self-identify their gender as well as report the gender of the children in their care in order to determine the extent to which gender may play a role in tolerance of risky play. Finally, while our small sample size is acceptable for Rasch analysis, a larger sample size of teachers from a variety of backgrounds teaching a variety of children will help continue this research and support the goal of ultimately using the T-TRiPS in practice. Overall, our findings suggest this instrument produces psychometrically sound data and will serve as an important tool to help teachers understand their tolerance of risk in play and serve as a mechanism for change to improve opportunities for all children to engage in risky play experiences.

### **Personal Reflections**

After teaching young children and experiencing my own fears of social consequences and litigation, this research helped me understand the profound impact gaining knowledge can have to shift perspectives. My past experiences as a teacher in a Reggio Emilia-inspired early childhood education center helped me view children as competent and capable, but I found I did not always practice this belief. My hope is that this instrument will help others acknowledge their own barriers to risky play tolerance and work to shift their perspectives and provide the children in their care with these important risky play experiences.

Through this thesis process and learning about the many factors that influence teacher tolerance of risk in play, I am inspired to share my findings from the T-TRiPS and support teachers in acknowledging and changing their perspectives of risky play. Through my role as an occupational therapist, I plan to partner with adults who supervise play to educate them on the importance of risk in play to develop children's skills. In the future I would like to present at conferences and schools to teachers and other professionals working with children on the

benefits of risky play. In these situations, I hope to use the T-TRiPS to measure their tolerance of risk in play and provide opportunities to shift their perspectives of risky play through workshops and discussions of risk. I will use the knowledge I've gained through this research to continue re-centering my perspectives of children as competent and capable and use my role as an OT to advocate for children's right to engage in risky play.

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## APPENDIX

### Teacher Tolerance of Risk in Play Scale (T-TRiPS)

#### 1. Purpose of the survey

This survey is part of the Sydney Playground Project, a scientific research project conducted with Ethics approval from the University of Sydney. All information gathered from this survey is anonymous and will be used only for research purposes.

#### 2. Information about the child

Think about what you would do for the majority of your students when responding to each question.

#### 3. Information about the child (cont.)

**How long have you been teaching/in this role for? (including other schools)**

▲

▼

**\*What is the age group of the children you currently teach/support?**

4-6

7-9

10-12

It varies

**\*How often do you encourage your students to take everyday risks?**

Please tick

Never

☐

Seldom

☐

Sometimes

☐

Often

☐

#### 4. Questionnaire

Think about all students when responding to the following questions. If the answer is ever **“yes”**, select “yes”.

**\*Do you trust your students to play in the classroom without constant supervision?**

☐ Yes

☐ No

Comment (optional)

▲

▼

## The Tolerance of Risk in Play Scale (staff)

**\*Do you let your students play chase with one another?**

☐ Yes

☐ No

Comments (optional)



**\*Would you let your students go head first down a slippery dip/slide?**

☐ Yes

☐ No

Comment (optional)



**\*Do you allow your students to continue playing after s/he gets a scrape?**

☐ Yes

☐ No

Comment (optional)



**\*Do you let your students continue to play very challenging activities even when you know they may not succeed?**

☐ Yes

☐ No

Comment (optional)



## 5. Questionnaire (cont.)

**\*Would you let your students climb a tree or other surface within your reach?**

☐ Yes

☐ No

Comment (optional)





## The Tolerance of Risk in Play Scale (staff)

**\*Would you let your students run in a place where there was an open fire or portable heater?**

☐ Yes

☐ No

Comment (optional)



**\*Do you allow your students to play-fight with sticks?**

☐ Yes

☐ No

Comment (optional)



**\*Would you let your students walk on a slippery surface if there was a chance they may fall?**

☐ Yes

☐ No

Comment (optional)



**\*Do you let your students use 'adult tools' (e.g. hammer and nail, knife, scissors) unsupervised?**

☐ Yes

☐ No

Comment (optional)



## 6. Questionnaire (cont.)

**\*Do you allow your students to engage in rough and tumble play?**

☐ Yes

☐ No

Comment (optional)



## The Tolerance of Risk in Play Scale (staff)

**\*Would you let the majority of your students jump down from a height of 3-4 metres?**

☐ Yes

☐ No

Comment (optional)



**\*Would you allow your students to care for pets in the classroom?**

☐ Yes

☐ No

Comment (optional)



**\*Would you let your students swim close to the pool edge while you were watching from the side?**

☐ Yes

☐ No

Comment (optional)



## 7. Questionnaire (cont.)

**\*Do you let your students resolve disagreements (without stepping in) if they are pushing or poking one another?**

☐ Yes

☐ No

Comment (optional)



**\*Would you allow your students to play on equipment if you thought there was the potential s/he may break a bone?**

☐ Yes

☐ No

Comment (optional)



## The Tolerance of Risk in Play Scale (staff)

**\*Do you allow your students to play-fight, testing who is strongest?**

☐ Yes

☐ No

Comment (optional)



### 8. Questionnaire (cont.)

**\*Do you wait to see how well your students manage challenges before getting involved?**

☐ Yes

☐ No

Comment (optional)



**\*Would you let your students climb as high as they wanted in a tree or on another surface?**

☐ Yes

☐ No

Comment (optional)



**\*Would you allow your student to ride a toy/bicycle down a steep hill?**

☐ Yes

☐ No

Comment (optional)



### 9. Questionnaire (cont.)

## The Tolerance of Risk in Play Scale (staff)

**\*Would you let your students climb as high as they wanted in a tree?**

☐ Yes

☐ No

Comment (optional)



**\*Do you let your students play in the playground unsupervised?**

☐ Yes

☐ No

Comment (optional)



**\*Do you let your students resolve disagreements (without stepping in) if the children are shouting but not hitting one another?**

☐ Yes

☐ No

Comment (optional)



**\*Would you let your student(s) go off on their own in a new environment if you were able to watch them from afar?**

☐ Yes

☐ No

Comment (optional)



**\*Would you let your students balance on a fallen tree or other narrow surface 2 metres above the ground?**

☐ Yes

☐ No

Comment (optional)



## The Tolerance of Risk in Play Scale (staff)

**\*Do you encourage your students to take some risks if it means having fun during play?**

☐ Yes

☐ No

Comment (optional)



### 10. Your experience of risk (Cont.)

**Share an example of a time when you allowed your student to do something that made you feel uncomfortable? Please describe.**



**What were the benefits associated with allowing this child to do that?**



**Can you think of something you used to do regularly as a child that may be considered 'risky'? Please describe.**



**What benefits did you get from doing that?**



**Would you allow your students to do that?**

☐ Yes

☐ No

Comment (optional)



### 11. Your experience of risk (cont.)

**Describe what you fear most for your students and why?**



## The Tolerance of Risk in Play Scale (staff)

### 12. Information about you

#### \*What is your age?

- ☐ 20 years or below
- ☐ 21-25 years
- ☐ 26-30 years
- ☐ 31-35 years
- ☐ 36-40 years
- ☐ 41-45 years
- ☐ 46-50 years
- ☐ 50-55 years
- ☐ 56 years and above

#### In what country did you grow up?



### 13. Survey complete

Thankyou for completing this survey.

For more information about The Sydney Playground Project, please visit our website: <http://sydney.edu.au/health-sciences/sydney-playground-project/>

## LIST OF ABBREVIATIONS

ASD	Autism Spectrum Disorder
GRF-OT	Great Recess Framework Observation Tool
IBC	Injury Behaviors Checklist
ID	Intellectual Disability
MnSq	Mean square
PASPQ	Parent Supervision Attributes Profile Questionnaire
POC	Playground Observation Checklist
PPOAC	Parental Perception of Positive Potentiality of Outdoor Autonomy for Children
PQ	Play activity Questionnaire
RBA	Risk-Benefit Assessment
REPS	Risk Engagement and Protection Survey
SARTQ	Supervision Attributes and Risk-taking Questionnaire
SOCARP	System for Observing Children's Activities and Relationships during Play
SOOP	System for Observing Outdoor Play
SOPLAY	System for Observing Play and Leisure Activity in Youth
S-PAPA	School Physical Activity Policy Assessment
SPP	Sydney Playground Project
SSSC	Sensation Seeking Scale
TRiPS	Tolerance of Risk in Play Scale
T-TRiPS	Tolerance of Risk in Play Scale for Teachers

WARE	Worry Assessment and Risk Estimation Scale
ZSTD	Z standardized scores