RISK AVERSION AND THE CONSUMER PRODUCT SAFETY COMMISSION'S EFFECT ON AMERICAN PLAYGROUND DESIGN

by

SHANNON J MIKUS

(Under the Direction of Sungkyung Lee)

ABSTRACT

The research proposes that the Consumer Product Safety Commission's (CPSC) playground safety recommendations confuse the meaning of "risk" and "danger", perpetuating a risk averse attitude toward play that negatively impacts play value. CPSC recommendations are the most widely accepted standards used in playground litigation cases. Litigation profoundly affected how risk is incorporated in playgrounds. The data set consists of legal findings, actor's public and official statements, news and journal articles, and photographs of representative, manufactured playground apparatuses. Legal findings regarding playground injury liability are compared to changing playground apparatus features by decade. Over time, the changing play value of representative apparatuses is compared. A chain of causality between the threat of litigation and reduced play value over time is implied. Legally accepted standards for safety force actors to undervalue or even prohibit play to avoid expensive litigation. Properly redefining "risk" and "danger" will enhance the function of American playgrounds.

INDEX WORDS: Playground, Risk Management, Playground Apparatus, Playground Equipment, Risk Aversion, Playground Injury, Children's Health, Play Value, Risky Play, Playground Litigation

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DEDICATION

There are no children more wonderful than the three I get to see at the end of a proper day. The thoughts expressed here are for them, and for the generation that they will happily come home to.

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Without shirking responsibility for the exact diction of the thesis, I will say that Drue is responsible for nearly all of it. She pointed me in this direction and then withstood my absences of mind and body with all the tolerance she could muster, maybe more than I deserved. Of all her catch phrases, “Why don’t you just (*insert blatantly obvious course of action here*)?” is my most loved because it says so much about my wife. Having to come up with answers to that question over these years makes me realize I am no match for her, intellectually, and it makes me long for days when husbands had to fight bears and crocodiles when performing their job, because no one asks, “Why didn’t you just…” in the middle of that job, especially if one survives. My utmost gratitude to the committee; Jack Crowley, Katherine Melcher, and Mel Cochran, your talents and time are much appreciated. Tanner, I am sorry that I gave the Firelark away. Building it for you is what got me going on this path, and the hope of building a better one is what keeps me going. Sage, your intolerance for senseless fluff and buffoonery are appreciated and thankfully are balanced by your boundless enthusiasm. Lagan, you do have to grow up, but don’t change. Doug, sometimes there is no answer to “How come…?” but I am glad someone has the gumption to keep asking, and demanding the answers. Dr. Lee, I’m happy that I could hear you state the purpose and structure of logical paragraph structure, repeatedly. In spite of that character quirk, you are two of the smartest women I know. My parents deserve the utmost appreciation and have my undying respect, as does the Kahuna. Mahalo, all.

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CHAPTER 1

INTRODUCTION

Always do what you are afraid to do.
- Ralph Waldo Emerson

Risky situations are a central aspect of play because they create challenges. Challenges entice children, draw their interest, engage their minds, and that is where play begins. As the term is used regarding play, "risk" is introduced to create fun, not to cause harm. There are many levels of risk in play from the curiosity of investigating a new butterfly, to learning how to swing on a rope, to flinging oneself across a void to reach the other side. Risk, properly designed into the playground, is essential because its challenge encourages play. Playgrounds that are made up of play equipment (more appropriately called "apparatus") that does not incorporate risky play are seldom visited. Without proper, popular playgrounds it is difficult for children to get the needed physical, free play they need to develop properly and stay healthy. The current playground safety standards, adopted by the Consumer Product Safety Commission (CPSC) in 1981 as guidelines to reduce playground injuries, do not recognize the value of risk in play. The CPSC's strategy, to reduce playground injuries by reducing risk, is dependent on litigation and the fear of litigation (Byington 1979, 330). Perpetuating fears of injury and litigation created risk aversion among parents, caretakers, play providers, and apparatus designers, and this risk averse environment prevents the widespread, proper application of risk and degrades the utility of American playgrounds.

Under the CPSC standards, American playgrounds have grown far less risky and there have been unforeseen consequences. Some playgrounds have closed and children are playing less, either from the lack of playgrounds or because the playgrounds that are left don't generate interest. Accompanying this trend, child health is suffering epidemics of obesity and type 2 Diabetes. Parents, designers, lawyers, playground operators, educators, administrators, insurance companies, and society generally misunderstand risk in play, both as a concept and as a term. Perpetuating a misunderstanding of risk, safety, and danger, through utilizing the CPSC's guidelines as the sole measure for acceptably safe playgrounds, prioritizes injury avoidance, to the degradation of playground utility and serves to devalue play, overall.

Experts in child development advocate risk as a design element, carefully introduced in varied amounts, to provide challenge and keep children engaged in play. This progressively introduced risk is the foundation for fun. Risk is not, in this context, synonymous with danger, nor should it be, if the following is kept in mind. Dr. Frances Wallach, a member of the first Safety Standards Panel of the U.S. Consumer Products Safety Commission in the 1980s, who also helped to develop playground safety guidelines, and was also one of the first Certified Safety and Health Managers through the Institute for Safety and Health Management (ISHM), says that a risk is something the child either can be aware of, or is aware of, that will force them to identify, analyze, and overcome the challenge, while a hazard puts one in danger because a condition for injury exists that the user cannot perceive (Wallach 1992, 53,54). Risk in play has great

value to the play environment; it creates “play value”. Danger has no place on the playground.

“Risk” is commonly tied to undesirable aspects of life such as the risk of getting hit by a car, the risk of losing one’s job, or the risk of getting AIDS, and understandably, one would avoid situations with these risks. A more precise understanding of risk’s role in play, as defined by child development and play experts, is summarized by David J. Ball, Professor of the School of Health and Social Sciences, Middlesex University, as he explains that risk on playgrounds is different than other kids of risk, “Simply put, in playgrounds, risks are held to serve some purpose; in conventional factories, they are not. A further implication is that the legal concept of '(reasonably) foreseeable risk' should not be interpreted in playgrounds in the same way as in factories” (Ball 2002, 49). Risk is incorporated in playground design for a playground’s proper function. The American legal system, however, does not recognize risk as a positive, inherent, or essential aspect of play. The law and the public remain ignorant of risk’s value in play and this makes it commonly acceptable to have a risk averse attitude and wrongly attempt to eliminate risk from the play environment.

Most people insist on eliminating risk and getting as much safety as possible. The CPSC standards perpetuated the illusion of what Anita Bundy, from the University of Sydney’s Health Sciences Faculty, called “surplus safety”, or making the probability of harm even more remote, despite the consequences to the activity’s goals (Bundy et al. 2009, 35). Today there is far more safety than play on American playgrounds.

Risk has a proper place in the exploratory experiences of childhood play. The term risk is not meant to describe impending harm or careless design. Risk, as defined by Wallach and described by Ball, has precise meaning in playground design. Some childhood development experts have attempted to make Americans understand the role and definition of risk, as it applies to playgrounds. The definition is slowly coming to be accepted, in its proper definition and meaning, in the child development literature (Zalaznick 2014, Wallach 1992, Chermayeff and Richter 2013).

This thesis will show how the American propensity toward risk aversion created boring playgrounds that became the standard. The adopted playground design standards, compiled by the CPSC, are the most widely used policy instrument for determining public playground "acceptability" in the U.S. and contribute primarily to boring playground design, poorly equipped playgrounds, and subsequent poor childhood health. The CPSC standards, first published in *A Handbook for Public Playground Safety* in 1981, are a set of engineering guidelines specifying many playground design aspects and focus on a single aspect of the play environment, reducing injuries. The CPSC standards are voluntary guidelines that act against the creation and management of attractive playgrounds by eliminating some of the most attractive elements like loose parts and mutability (American Journal of Play 2008). Relying on CPSC standards as the sole measure of playground safety is the primary force creating boring playgrounds because the standards address only safety aspects. Reducing all forms of risk might eliminate some injuries, but it also eliminates a large measure of play value.

The primary objective of this thesis is to establish that the CPSC's playground safety standards perpetuate a risk aversion strategy toward play and this has negatively impacted playground design. This thesis will examine how legal issues and litigation cases have affected incorporating risk in playgrounds. Through examining legal decisions and the subsequent reactions of government, playground designers, insurance companies, and playground owners/operators over time, a chain of causality is established that shows a propensity of increasing risk avoidance finally reaching risk aversion. Risk aversion affected playground design and playground management to a point where play became undervalued generally, and in some places even prohibited.

The thesis proposes that understanding the relationships between risk, play value, and safety will allow Americans to accept a certain degree of designed and calculated risk in playground design. Playgrounds contribute to society by providing safe places for children to engage in free play. The character of the play apparatus, though not the sole factor in play space affectivity, contributes greatly to the play value of the play space by attracting children to play again and again. Character directly influences form and dictates whether the play space will perform its function, which is to challenge the children to interact physically, engage mentally, and grow emotionally and socially. Risky apparatuses, specifically designed to entice children to develop and play safely, create more effective outdoor play environments for children. Ultimately, this thesis implies that establishing a new relationship between risky play and safety will improve playgrounds and encourage design that incorporates varying levels of risk, offers high play value, and eliminates danger on the playground.

Playground apparatuses form from the early 1900s until the current day will be examined to find changes that have reduced overall play value. Changes in form since the late 1970s and early 1980s will be linked to the CPSC standards. Recent playground design changes are motivated by injury reduction through risk reduction and the CPSC standards are the touchstone document for the industry design professionals.

The CPSC standards attempt to reduce injury through reducing risk, but risk is misunderstood in the context of play and has not been directly related to injuries. Risk in play is more akin to risks in the stock market or risks in military operations; meaning that the payoff and benefits are either grand or essential for the conditions of existence so confronting the risks is necessary to achieve an essential goal. It seems like a cognitive stretch to compare risk in military operations and risk on the playground, but the nature of the payoff is comparable, not the measure of the risk. Risk can be engineered into playgrounds to give children various challenges to achieve the goal and avoid danger. Risk in play creates adventure. Without it, play is reduced to boredom.

The nature of playground risk has been reduced over time but Americans have continued to litigate playground injuries either to seek compensation or on the promise of getting rich. In either case the misuse of "risk" to game the legal system has perpetuated confusion regarding risk's role in the playground.

CHILD HEALTH

Researchers place the declining health of American children in the category of "crisis" and "epidemic". Nearly 20%, 2.5 million, of American children are obese, and

among new cases of type 2 Diabetes nearly half occur among children where it was unknown in children 20 years ago (Rao 2008, McGlashen and Pontifex 2012). The crippling, long-term effects of these conditions effectively rob this generation of normal physical and mental development, preventing them from becoming useful adult members of society, and places a staggering health care burden on the country (Hannon, Rao, and Arslanan 2005). Between 1982 and 1994, for instance, the occurrence of childhood type 2 Diabetes increased ten-fold, but there are more threats than that (Ibid.) Mental and emotional disorders such as Attention Deficit Hyperactivity Disorder (ADHD) and Autism also cripple children's development. According to the U.S. Centers for Disease Control and Prevention (CDC) children with ADHD are 3 times as likely to have peer problems, are 10 times as likely to have difficulties that interfere with friendships, and have more injuries than do children without ADHD (Centers for Disease Control and Prevention 2013).

The overarching commonality between causes of ADHD and childhood obesity is not yet understood, though it is evident that sedentary behaviors contribute markedly to poor health through creating the opportunity for disease (Marshall et al. 2002). Dr. Routham Gao, MD, of the Children's Hospital of Pittsburgh, cites recommendations of the American Medical Association's Expert Committee, noting one thing that is clear; exercise, more than medication, is the cure for childhood obesity and the resulting type 2 Diabetes (Rao 2008). Likewise, experts such as Robin C. Moore of the University of North Carolina and researchers Andy McGlashen and Matthew Pontifex of Michigan State University point out the essential aspect of play and exercise on proper mental

development as well as exercise's curative effects (Moore 1997, McGlashen and Pontifex 2012). Since children get their exercise from play, an absence of proper play environments can be detrimental to children's health. It is this link that lends import to the study of the relationship between risk and play. Because risk is critical to engaging and enticing children, playgrounds without risk can be seen as boring, and other less healthful activities, like screen time, are often sought.

Without obvious, external harm to the children, it is difficult for parents to imagine that incorporating screen time over advocating active play can be detrimental to children. Dr. Joe Frost responded to the suggestion that, "If kids don't have age appropriate play environments where they can interact with other children and develop motor skills, big deal—can't they just play at home, becoming Wii wizards and Playstation 3 prodigies?" by saying, "The play that builds children's physical, social, cognitive and affective development does not happen in front of a video game after school or when a child is alone in her bedroom watching TV and instant messaging a friend" (Randal 2007, 3).

Dr. Frost is explicit about the consequences of growing up without play. The effects of play deprivation, that is,

> [The] absence of play in supportive, positive contexts can create violent, antisocial, mentally impaired and emotionally sterile adults. In one study, about 95 percent of the convicted murderers who were examined reported either the absence of play as children or illogical, brutal, abnormal play such as bullying, sadism and extreme teasing. In the same study, around 75 percent of drunk drivers who were examined reported play abnormalities (Ibid. 3).

Additionally, Phillip K. Howard's book, *Life Without Lawyers,* tells how Dr. Stuart Brown, founder of the National Institute for Play led the commission that explored Charles Whitman's motivations and his personal history that led him to murder fourteen people at the University of Texas in 1966. "The commission found that 'his lifelong lack of play was a key factor in his homicidal actions.' This was also true with other mass murderers" (Howard 2010, 42).

There are profound consequences to devaluating play and creating playgrounds that are designed by adults, to assuage adult fears, rather than risky, attractive, busy playgrounds that support proper childhood development. Children's mental and physical health is in crisis because American adults have chosen to build playground designs that have been dumbed down, designed for the lowest common denominator, and lack any serious play value.

Maintaining an aversion to risk in a play environment has incurred unknown costs that are quickly being realized. Adopting a play policy that was risk averse has not yielded the expected benefits. David Ball, Tim Gill, and Bernard Spiegal, Europe's top play development experts, were tasked to write a risk management guide for the EU's Play Safety Forum that would assist parents and administrators in incorporating risk into the play environment. In the work, *Managing Risks in Play Provision: Implementation guide,* Ball, Gill, and Spiegal point out that,

> simply reflecting the concerns of the most anxious parents, and altering playground design in an attempt to remove as much risk and challenge as possible, prevents providers from offering important benefits to the vast majority of children and young people. It may also lead more adventurous children to seek physical challenges in other,

> less well-managed environments, while others settle for sedentary activities (Ball, Gill, and Spiegal 2012, 13).

Indeed, choosing to pursue the elimination of injuries on playgrounds and adopting risk elimination as the means has changed design to dramatically, reduced play value, and with it the probability for a healthy, long life for children has been sacrificed.

PERSPECTIVE REGARDING RISKS

Introducing risk to children early in life is important for two reasons. First, risk is always present in the world and children need to learn to be aware of it and how to deal with it properly (Chermayeff and Richter 2013, Freeplay Network 2010, Brussoni et al. 2012, Zalaznick 2014). Second, risk in play ads play value that encourages interaction and activity that are vital to proper development (Jansson and Persson 2010, Richter-Spielgerate 2011). For both reasons, designers can include risky elements in playgrounds.

As a military veteran with 20 years in the US Air Force, 14 of those with training in Safety Systems Analysis and 12 years as a trained Aircraft Accident Investigator, I learned that risks do not cause harm, dangers do. People can manage risks and even take actions against dangers to reduce risks to manageable levels. In addition, the value of missions and goals are usually directly proportional to their risks, so overcoming more and greater risks to achieve one's goal can yield great accomplishment. This outlook of accepting and managing risk is called risk management. Risk management is goal-focused while risk aversion favors avoiding

goals that involve risks, not because the goals are not worthy, but because it is more important that risks are avoided than goals are met. Safety, likewise, is not dependent on the lack of risk, but is something that one gains by weighing the cost of risk reduction measures against the benefits of reducing certain levels of risk. It is possible to take measures that eliminate all risks, but the costs are often infinite and the goal's benefit then is worth less. Managing risk has a long history in industry and the military as the foremost tool to effectively and efficiently accomplish goals in changing, risk-filled environments. Children can learn how to manage risk and should be afforded the opportunity to do so early in life so that risks become something they encounter, manage, and conquer rather than a part of life they avoid and hide from. Responsible adults can allow children to face risks and help them learn how to manage risks. Sheltering the children too much from risks, to prevent any emotional trauma or social stigma to the parent, skews the child's perception of the world.

The most important factor is how children at play regard risk. Julian Richter, one of Europe's most prolific playground designers, has learned that children's motivations and capabilities should not be underestimated. Indeed, the only growth comes from pushing boundaries and establishing a relationship between the child and the environment in which the child is responsible for his/her own success, failure, and resiliency. Richter encourages adults to trust children and understand that they intuitively understand risk. He comments about risk and play when promoting safety, saying that, "Children manage risk as they play…Children seek out risk and adventure to continue to extend their skills. A little boy climbing up onto a wooden pig with a great

deal of effort risks falling down. He understands this exactly but nevertheless continues bravely to try until he has mastered it" (Richter 2011). Conquering risk creates accomplishment and children have fun challenging themselves to finish what they have set out to do.

Figure 1. Try and conquer. credit: mommyhiker.com and www.7e.com

Play is essential for proper childhood development, and fun is a necessary ingredient for a popular playground where children come again and again; exercising and playing and growing. Without risk in playground design, though, fun is lacking and this leads to less popular playgrounds and children seeking other adventures in other places. A safe playground is one where children are enticed to participate, play, have fun, and come back. Risk must be included as an important element of a proper playground because it links activity to interest.

The current idea of safety is too often confused with being injury-free and these ideas are mutually exclusive when play is concerned. Children will get hurt, children will get injured, and that is how they learn to recover from upsets, assess the situation, and continue with life. The CPSC's statistics regarding playground injuries shows that even after more than 35 years under the safety standards, injuries still occur on playgrounds at roughly the same rate, based on percentage of the population (O'Brien 2009, 4). The

CPSC estimates that 75% of those who report to emergency rooms for playground-associated reasons are treated and released, and 13% of those are released without treatment (Ibid.). Drastically reducing risk has not served to reduce injuries or increase safety. The incorrectly perceived relationship between safety and risk, where the one must go up in order to drive the other down, ignores the unique setting of the playground and the value that risk brings to the experience. The best functioning, most popular playgrounds are designed to create a relationship that is specific to children's playgrounds where risk and safety exist in proper proportions.

Consider the rate of playground accidents and the rate of childhood diabetes and obesity and for the last 40 years. Childhood diseases that arise from lack of activity have increased while the rate of playground injury has remained relatively stable. The CPSC reported that between 1990 and 2008 there were on average, around 220,000 playgrounds injuries annually (Tinsworth and McDonald 2001, O'Brien 2009). Focusing on injury rates has not reduced them, but has affected playground apparatus design. Attempts to affect playground injury rates through redesigning progressively more stringent structural or design aspects has confused inspectors and playground operators and forced a cost on operators to make updated changes, while injury rates remain steady (Frost and Sweeney 1995). This confusion has successfully deterred many organizations, especially local, grass roots groups, from improving existing facilities or creating much-needed new playgrounds to increase active play (Hannan 2012, 10). Establishing risk averse playground standards has not improved American children's health. Perhaps a play-centric definition of risk, one that focuses on effective

play outcomes, is needed? Defining a safe playground as one that includes judiciously designed and managed risks would accept and legally recognize risk's value in play. How this could be achieved amidst current applicable legal and political frameworks requires further study.

LEGAL CONCERNS

American law and legal definitions are very important to playgrounds. Since the 1970s citizens began to have the capability to exercise torts against government. The legal definitions of risk and safety did not change during that time, but the manner the terms are applied in lawsuits has changed and this has damaged the capacity for proper playgrounds to be constructed. Prior to the 1970s, governmental functions, from Federal to municipal, enjoyed protection from torts under the concept of sovereign or municipal immunity. Sovereign immunity is a legal term describing the freedom from torts, which protects governmental functions from law suits in the execution of their official duties (Cornell University Law School 2011). Prior to the 1970s, municipalities built and operated playgrounds that catered to children's interest without fear of litigation and only under the advise of playground consultants or their own budgetary and philosophical limitations (Solomon 2005). When citizens gained the opportunity to sue their governments some citizens sued municipalities for injuries on playgrounds arguing a range of faults against government from insufficient supervision to dangerous apparatus. The courts utilized common concepts of risk and safety that were applicable to situations where any risk was undesirable and safety was paramount (Barton 2006,

274-278). But because risk had been designed into those early playgrounds, some playground operators found themselves being liable for injuries because they had installed appropriate apparatus. The liability one assumes in creating a playground will continue to be a huge burden as long as the law corresponds risk to danger.

Another way to relate to risk involves ensuring that the user is well aware of risks. Legally, when the presence of risk is treated as an element of the environment, such as in highway traffic or military operations, identifying and managing risk becomes the responsibility of the user. Risk is then managed, rather than eliminated. How this could be achieved is the subject of a very in depth study by David Ball, Tim Gill, and Bernard Spiegal of the Play Safety Forum (Ball, Gill, and Spiegal 2012), and applying its conclusions in the United States is a subject for further study.

Today's playground safety standards confuse and equate risk and danger. The CPSC standards are voluntary, but utilize litigation and the threats of litigation rather than direct, explicit regulation to give them legal force (Byington 1979). The threat of economic harm via litigation appears to have invited the willful misinterpretation of positive aspects like risk and safety to be used as legal weapons for economic gain. This thesis will show how the CPSC standards have inadvertently reduced play value. Comparing older playground apparatus designs to recent ones and evaluating the perceived play value of each will show a steady decline in play value.

Legal concerns play a prominent role in the design and implementation of any playground assembly. This thesis focuses on the manufactured apparatuses that one commonly sees on the playground.

METHODOLOGY

The thesis assumed that E.B. DeGroot's assertion, that "equipment" and "apparatus" need to be considered separately, was meaningful. DeGroot was the Chicago South Park Commissioner and wrote prolifically about children's play.

> Pitfalls that befall those who handle playgrounds, who are not play leaders or playground designers, is that they fail to differentiate between equipment and apparatus. Equipment is the "inclusive, attracting, and interest-sustaining element" and apparatus is the appendages. Failure results from too much attention to apparatus and not enough to equipment (DeGroot 1911).

DeGroot saw "equipment" as a term that described the overall, large scale pieces of a play environment. For instance, a "slide" usually is composed of a tall ladder, supported by a frame that also holds a platform with rails and attaches to a sloping flat smooth piece of wood or metal sheet that may be bounded by rails or a containing edge or lip. This entire collection of various apparatus (the ladder, the frame, the platform, etc.) is a piece of "equipment" commonly called "the slide". Likewise, if considered holistically, each play piece (the slide, the swings, the balance bars, etc.) could be considered "apparatuses", grouped together, and the entirety of pieces in the play area then considered "equipment". The term "apparatus" is used in the thesis to describe the parts that engineers and play inspectors are concerned with. "Apparatus" is most frequently used because the thesis is concerned more with the specific appendages of equipment that children directly and physically interact with than with how children might perceive or use the whole playground. Separating these terms allows later research to understand that the scope of the thesis concerns the effects of

CPSC policy and standards on apparatus design rather than entire playgrounds or playscapes as they may be integrated into neighborhoods.

The history of litigation concerning playgrounds holds a key to understanding why and how playground form had changed. The thesis began by exploring playground forms over time to determine if there were wholesale design changes that affected play value. Photographs and accounts from playground experts in the first days of American playgrounds were gathered and compared to photographs and accounts of current playgrounds. The photos and accounts included, materials, dimensions, and intended uses of the apparatuses. Comparing evidence showed there were dramatic changes in materials, height, and shape between the early 20th Century's playgrounds and today, so a more incremental approach was adopted.

Changes in play value will be examined. Internet searches for playground equipment manufacturer's offered designs, and also blog searches for popular playgrounds, provided a popular survey of playground equipment forms available and in use.

Playground manufacturer's websites were visited and the six most popular design/manufacturers, based on order presented in Google and Dogpile search engines, and the correlation with the search through playground blogs, were called and asked to rank their most popular designs. All six manufacturers declined to specify their most popular apparatus, but were very willing to share their valuable time discussing playground design philosophy and their experiences complying with CPSC standards. From each of these manufacturer's website catalogs, apparatus designs were grouped

by function such as slides, climbers, walls, swings, etc. Representative designs for each grouping were subjectively chosen to represent essential characteristics shared by all types among manufacturers. In addition to availability from designer/manufacturers, the types and kinds of apparatus actually in use was important because it showed how public agencies decided to best allocate their scarce resources.

To compare old apparatus types, old images were found on the Internet using a variety of search terms. The Internet search for playground apparatus images consisted of two strategies. The first looked for historical apparatus types. The second searched for popular playground apparatus. Though certainly not exhaustive, the Internet searches allowed a wide net to be cast.

Historical images were grouped by type and decade with the most representative being used for analysis. Many of the older apparatus were custom made and variations among types existed, so the basic function that the type was representing, such as mutability for instance, was the primary factor for selection. Also important was the fact that some playground apparatus types have no modern analog. It is important to show the form and functions to establish a frame of reference and gain understanding. One must see a hard-seated swing to understand how a hard-seated swing could kill a child, yet its obvious simplicity and availability show why it was used. In addition, image selection was intended to represent a type as obviously as possible. Though the specific characteristic may not have been the most popular, the images represent an actual use, though it may seem extreme to modern sensitivities, and were not rare.

To gather current images of popular playground apparatus Google and Dogpile searches for “popular playgrounds” and “fun playgrounds” was conducted. The many images gathered were divided into groupings by the decade of their use, and those representing similar play value aspects were further sub-grouped. Final selections were entirely subjective and making the distinction for each play value aspect was very enlightening. The most popular playgrounds contained apparatus that did not fit neatly into a single play value group but rather spread, effectively, over many groups. A well-designed wall, for instance, was not only a good climber for gross muscle development, but also served as a gathering place, had historical relevance, was attractive, adaptable, and provided many varying levels of challenge.

Photographs and accounts representing each decade were gathered and compared to the previous and following decades. Using Google image search, Google Scholar search, journals, and literature, to gather images and accounts of playground apparatuses, a database was formed. The designs shown were culled from Google, Google Scholar, and BING searches for: “play equipment”, “playground equipment”, and “popular playgrounds” by decade, from the 1890s to 2010. Types of apparatuses that showed up at least 10 times out of 100 images were decided to be “popular”. Since there were several types (swings, slides, and monkey bars, for instance) as well as several occurrences of types, and these search engines are based on hit popularity, requiring a larger occurrence out of 100 images essentially limited the type of apparatuses to swings and slides. The literature on playgrounds from Solomon, Frost, and others, as well as from the legal case documents, contradicted this finding.

The equipment type list from NEISS was also used as a baseline for apparatus types that would be considered in a proper representation.

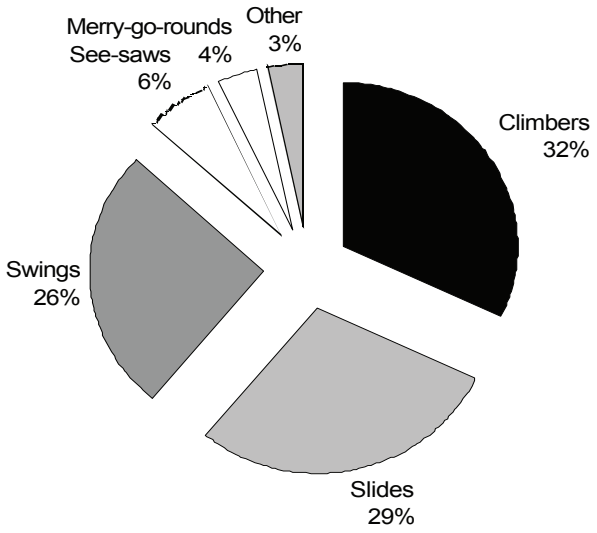

Figure 2: Estimated percent of type of public playground equipment associated with injuries treated in emergency departments, NEISS special study, April-December, 1988. credit: CPSC, 2000.

A 10 of 100 Internet search result ratio was the highest ratio that resulted in a variety of apparatus types that is consistent with mentions in the literature and legal cases.

In some image searches for playgrounds of the 1900s to 1930s, duplicate images especially those that showed on blogs and in news articles were mislabeled as to time or location. Where possible, these images were traced to original images that had been labeled by the photographer or were labeled in an official archive such as the Library of Congress, or municipal archives. If the time or place could not be confirmed, the image was not used to establish a decade's playground form. Visual cues were

used to establish scale in images and where possible archivists or photographer's descriptions of materials were used, also.

Photographs and accounts were grouped by decade, and apparatus type. Though numerical representation of apparatus could not be established from the photograph database, accounts from sources were used to establish approximate apparatus numbers, only for the purpose of establishing what apparatuses were probably in playgrounds of the period. Accounts from government or community sources, such as the Playground Association of America (PAA), stated the most accurate playground numbers for the country's largest cities in 1908 (Arnold 1908) and often discussed apparatuses that were used. Though this is not a comprehensive account, it does give an idea of common apparatuses. Industry accounts also helped establish what kind of apparatuses were present by discussing or advertizing apparatuses they were selling during specific decades.

Photographs and accounts were grouped and aspects of the groups compared to other groups. Changes were evident, but manifested in the entire system over long periods of time. Photographs of one major American city's playgrounds of the same decade did not necessarily show similar forms as another major city's playgrounds. Changes among and between playgrounds were evident over time, however. Usually these changes concerned overall playground layout, apparatus scale, and function.

Literature from playground experts, journals, and news articles pointed out the strong effect that the law exerts over playground management and design. Accounts from Dr. Joe Frost, an expert witness in over 100 playground injury lawsuits, and the

accounts from Susan Solomon, author of *American Playgrounds, Revitalizing Community Space*, suggested that lawsuits began to affect playground design around the 1970s. Searches through Lexus Nexus, which polls common and professional literature, and Google Scholar, as well as the UGA library's GIL system, using search terms for "playground", "injury", "litigation", "child", and "death" found the base data sets. From this base data, the cases that involved specific instances of safety, sovereign immunity, liability, design, and CPSC standards were further examined. Likewise, a search of legal reviews from Google Scholar and Lexus Nexus with key terms of "playground", "injury", "child", and "death" made another point clear; legal cases that resulted in judgments concerning playground injury were rather rare, but the cases that were available gave important and consistent insights about court decisions and the laws that were forming the basis for decisions.

In order to show how the CPSC standards have affected playground utility and form, a comparative analysis between litigation effects on playgrounds prior to 1972, the year of the founding of the CPSC, and litigation effects on playgrounds after 1972 was conducted. The legal basis for decisions in each case was tracked and compared to the legal bases for later cases, to show how the legal system was changing over time.

Since many injury law suits were resolved outside of court direct records are scant (Frost and Sweeney 1995), There were very few cases that actually reached decisions, but most are presented in the thesis. Where several cases of the same period were consistent in their legal basis, a representative case was selected based on

how often it was referenced in later cases. Cases presented in the thesis show final legal decisions and are representative of the legal climate.

Direct effects on playground design and utility concern the immediate, intended uses of the apparatuses and equipment as tools for developing children's' physical, mental, social, and cognitive aspects. How the legal and social climate directly affected playground design is presented by comparing forms of differing timeframes. These changes directly concern play value.

Indirect effects on playground design and utility concern devaluing the concept of play, developing societal risk aversion, and the devastating childhood health crisis. Literature is presented that catalogs the events and policy showing a propensity toward undervaluing play's necessity.

The form of playground apparatus from 1900s until present will be compared using photo comparisons to assess play value based on commonly accepted child development criteria. Form's direct effects on the play environment are important because form is responsible for drawing the crowds of children and it also ensures their play time is active and healthful. Statistics will show the decline of child health over the concerned timeframes. Also, medical journals and reports will detail treatments for obesity and ADHD that are centered on exercise, providing the link to physical activity and strongly suggesting that proper free play can be effective in curing childhood obesity and also is an effective treatment for ADHD. Changing form and declining health are causally linked through time.

THESIS STRUCTURE

The thesis aims to examine the nature of playground changes over time and to find the reasons for these changes. It was necessary to establish the nature of changes first, with the hope that the changes would indicate why the changes were made. The increasing prevalence of two factors, apparatus designs that lacked risk and risk averse playground policy changes, would indicate a reaction to risk avoidance factors in American culture. Through examining the history of playgrounds in America, an original purpose for playgrounds could be found and changes in purpose, over time, point out significant periods where form and design change to reflect those time's understanding of the relationship between risk and play.

Chapter 2 portrays the playground's traditional purpose and shows why risk is needed in playground design. Influential organizations such as, the PAA, Universities and various city and educational organizations, the insurance industry, the legal system, and the APA have definitions and attitudes regarding, fun, safety, risk, danger, and children's' health. It is important to understand the different definitions and perceptions of risk, safety, and danger because these differences are the central elements that create confusion and pitt agencies with common purposes, improving health and welfare, against each other. The extent of the child health crisis is presented and its commonly accepted causes, and commonly prescribed cure are presented in Chapter 2 because the idea of child health and the extent of the problem are also the concern of the involved agencies.

Chapter 3 will examine playground litigation from 1900-1972 to show the legal environment, before the CPSC's influence, contributed to American risk aversion where play is concerned. Important legal cases from 1900 - 1972 related to playground injury show how citizens viewed the government's responsibility toward creating safe playgrounds. The concepts of liability and strict liability are examined as they relate to playground litigation. Also, the role of the courts in defining risk and danger, in a wider social context of the times, is presented.

In Chapter 4 the 1970's national political climate will be highlighted because it set the tone for the anti-industrial legislation that created the CPSC and also set the organization's agenda. The chapter will introduce the CPSC and examine how it eventually decided to implement injury reduction strategies and injury reduction policy using product recall and scientific national standards as their tools. Understanding the CPSC's tools and their effects on industry is important because this formed the environmental parameters in which playground operators, playground designers, and equipment manufacturers legally plied their wares, setting precedent for their protectionist strategies. The process that the CPSC uses to determine goals and methods, and the data that supports the process, is examined using the CPSC's documents and outside expert literature. Examining the tools, such as the product recall and the ASTM standards that the CPSC uses to take action is important because it relates directly to the CPSC's dependence on one aspect of the legal system, financial penalties.

Chapter 5 examines who makes playground policy. It will examine how a very complex child development issue, playground injuries and the right to suitable play environments, is handled in the American legal paradigm. Cases and literature will show how the threat of torts is the CPSC's method for enforcing national playground policy, and that the sole the measure for success is injury reduction. The specific judgments and cases are selected because they describe the internal debate between the competing legal ideas of sovereign immunity and just compensation. Selected cases are chosen as examples of how the CPSC is, in effect, making national playground policy. Specific changes in playground apparatus form are shown to be a direct byproduct of safety-only decisions. Insurance industry behavior is also examined for its contributions to national attitudes among citizens and industry, and to show how the insurance industry's failure to anticipate its own collapse effected how the law is used.

Chapter 6 will examine changes in playground apparatus form over time. A short history of American park and playground evolution provides a framework for understanding that as early as the 1860s government agencies accepted responsibility for public health and welfare and included parks and playgrounds as a means to achieve public health goals. Legal cases and design changes are linked through time to show how the legal interpretation of risk affected design.

Chapter 7 summarizes the thesis, showing an overall trend toward design for the lowest common denominator, an effective "dumbing down" of American playgrounds through adoption of safety standards as the main measure of playground suitability.

The direct and indirect effects that CPSC standards have had on playground utility and the perception of play's value is examined. In addition, the difference in play value between commonly installed playground apparatus and more risky playground apparatus is examined, and a recommendation for a new paradigm concerning the role and function of risk in play is suggested.

LIMITATIONS AND DELIMITATIONS

Two major factors that limit the thesis are, the private nature of civil litigation settlements, and a lack of national playground data gathering. These two factors effectively reduce the direct sources, such as primary source literature and primary data sources, available for research. Understanding these limitations, a circuitous route was taken to examine the effect of legal decisions on playground design.

First, the available literature that directly relates playground accidents, and their subsequent legal judgments, to specific actions on the manufacturer's part or that of the designer, are often kept private because they more often are settled via civil actions or out-of-court settlements. Documents that discuss any details regarding these kinds of actions are likewise not necessarily intended for public notice. This information would be very helpful in drawing direct links between legal cases and playground design changes. In a report on playground safety and litigation Dr. Joe L. Frost, the Parker Centennial Professor at the University of Texas, Austin and an expert witness for over 100 playground litigation cases since the 1980s, notes that "…playground injury/fatality data from litigation is valuable because over 90 per cent of the lawsuits settle out of

court and the records are not accessible to the public"(Frost and Sweeney 1995). This litigation data contains the police investigations, hospital records, on-site inspection data, supervision and maintenance records, and so much more of the pertinent information one would require to begin drawing conclusions and defining causes. There are a few sources for exhaustive, accurate data such as death investigations and sanitized records from expert witnesses and these are commonly used by the CPSC, but are not available for the general public. These sources represent most of the data used to draw inferences and connections and their interpretation by the CPSC is utilized in this thesis.

Second, neither complete data on national playground conditions and statistics nor causal factors in playground injuries are available. The CPSC utilizes the "National Electronic Injury Surveillance System (NEISS), a statistically selected sample of 100 hospital emergency rooms located throughout the United States that report product-related injuries to CPSC on an ongoing basis" (Tinsworth and McDonald 2001). Under certain circumstances, CPSC investigators will investigate specific cases, but that is rare, totaling less than .1% (one tenth of one percent) of injuries (O'Brien 2009). The data collected by NEISS frequently is incomplete. The data collected by NEISS is not designed to precisely report causal factors to a detailed level that one would require to determine whether human error, weather, safety systems, equipment, or any factor or system functioned as advertised or failed, or to what degree those factors were responsible for the injury. Likewise, any reports from the manufacturers are private and

data is rarely available besides generic data the CPSC releases for recalls. This thesis research is limited by the specificity of documentation available to the researcher.

Because of this limitation the thesis will seek to link major design changes to safety or liability issues through the causal chain of time, alone. This assumes that industrial processes, being expensive to change, are kept as free from change as possible, unless absolutely essential. Therefore, any major change to design will be inferred as having had a substantial cause such as legal or financial consequences. This cause can come externally from the regulatory agencies, such as CPSC policy, or the insurance industry policy, or it can come from internal sources like the financial consequences of paying damages. Of the external sources, the CPSC alone keeps a public file of investigations and statistics. An ancillary, but vital source is newspapers and magazines that often report incidents or resolutions but seldom do so to a degree of detail that would provide direct causality, either.

Delimitations are the factors that the researcher knowingly imposes on the scope or breadth of the thesis. The thesis is delimited to playground equipment design changes for manufactured apparatuses that have significantly affected the appearance of playground apparatus form and can be inferred to indicate an acceptance or prevention of risk. By comparing the visible changes of manufactured apparatuses in form over time one may discern patterns in those changes and infer the cause of those changes. In addition, the research and scope are delimited to situations where American rules and laws apply. This makes sense because the American sensitivity to risk and childhood injury is unique.

CONTRIBUTION

This thesis utilizes a unique perspective to evaluate play value in playground apparatus and examine the change in playground form that has occurred over time. It will show that a causal chain exists between policy and designed play value but that the policy's method of execution is counter to its goal. A subjective system for rating play value is in need of further refinements that can add objectivity. This is a subject for further research. The thesis is meant to start a discussion on the need to reassess whether the current playground policy, strictly based on injury reduction and currently executed in the current legal paradigm, serves to promote public health.

CHAPTER 2

CHILDHOOD HEALTH, FUN, RISK, AND SAFETY

Play is important because it is a critical part of children's development. Play is motivated by the enticement of challenge, found in risky situations of varying degree. When children experience fun they strive to enjoy it again and again. Playgrounds that present risk at many levels, over time, are visited repeatedly and are the main places where children's play needs, and thus a large portion of their developmental needs, are met. E.B. DeGroot presented the idea that playgrounds play a foundational role in proper, healthy childhood development, and, therefore, deserve special effort.

> Our problem, then, is one of presenting certain play areas in every community, so thoughtfully and perfectly equipped, that they will attract and hold the children. This, I believe, we can do if we give more attention to equipment, and less...to apparatus. The problem is … one of readjustment of environment of both little and big children in a complex civilization. If we think of the problem as a small one we shall try to solve it by supplying a few pieces of apparatus; on the other hand, if we think of it as a big, complex, social problem, which it is, we shall think of equipment first, and apparatus later (DeGroot 1911).

This chapter examines the relationships that fun, safety, risk, and danger play in healthy childhoods. Fun, safety, risk, and danger are important ideas that affect playground design. Fun is the driving force behind play. Play is a child's way to experience the world, to learn, and to develop. Risk is the precursor to fun and it draws children to explore and investigate and play. Risk is essential in proper amounts for creating fun, encouraging healthy development, providing safety, educating about risk,

and avoiding danger later in life. Within the context of the thesis, designed apparatus, as part of a designed environment, performs a function, especially on the playgrounds. Designers of all built environments can contribute to creating healthy environments if they understand the relationship between risk, play, fun, and health.

Lady Hurtwood's tireless support for child-friendly cities and, short of that, playgrounds brought child health issues to the fore in British politics. During the 1950s and 1960s the nation of Great Britain, where city planning and design had neglected the needs of families and children for decades, was experiencing a child health crisis and increasing behavioral problems with its youth (Hurtwood 1968). Lady Hurtwood made the case that it was the city's form that had affected the children's function.

America is undergoing its own child health crisis; perhaps there are parallels in the seeds of these problems, and possibly similar solutions.

FUN ON THE PLAYGROUND

Once children experience fun, it becomes the motivator for most of their activities like physical free play, and even learning (Mayfield et al. 2009, 10, Prensky 2001, 05-6, Weiss 1993). An appropriate amount of risk can provide fun that will keep children engaged, repeatedly, on many levels of experience and development (Ball 2002, McManus and Furnham 2010, 164, Read, MacFarlane, and Casey 2002, 5). Fun is enhanced by play value (White 2012, 55). Fun cannot be designed, but apparatus with risky characteristics can be designed and these provide play value that creates opportunities for fun (Ball 2002, 62, Jansson 2010, Richter-Spielgerate 2011).

Play is the occupation of children. It is what they do. Fun is what motivates them to play. Objects and activities that are interesting or risky are attractive, and they are drawn to explore through play (Hart 2002). It is very important, then, that fun be seen as the key element to motivating play. As adults seek a way to focus children's attention onto desired, healthy activities, it is vital to remember the qualities that make something fun and create those conditions where, when, and how it will benefit children.

Edward B. DeGroot, the Chicago South Parks Commissioner, wrote in 1911 that children do not ask for playgrounds, they "ask merely for the opportunity to play. The child's attitude toward play is to take it as they go. When they want to play they do not rush off to a distant playground, but...take from their pockets marbles, tops, dice, and other tools...which they put to use wherever they happen to be – on the street, in the alley, or a few feet from a vacant lot" (DeGroot 1911, 5). DeGroot understood that children were driven to play and that the need did not manifest itself solely in the adult-defined borders of designated spaces. Children will and do play anywhere and all the time. Coming to an understanding of this dynamic element of society is crucial to providing a healthy environment for children, or what DeGroot called the "equipment" of play (Ibid.).

Children learn about the world through play, so the world is the playground. Robin C. Moore, Professor of Landscape Architecture at North Carolina State University and President of the International Organization for the Child's Right to Play, is an authority on childhood development and natural play. In his 1997 article "The Need for Nature: A Childhood Right" he says that vacant lots and open city areas were the

informal play areas, since many cities did not have or dedicate the required resources toward developing appropriate space in the needed amounts (Moore 1997).

Children often explain their interest and profound occupation with play by saying that it is fun. How can fun be defined in terms that allow a specific distillation and utility? Webster's dictionary defines fun as; "someone or something that is amusing or enjoyable: an enjoyable experience or person". Pierre-Alexandre Garneau, while studying the software design of children's videogames, tried to find some applicability in the idea of fun, through asking, instead, what kinds of activities are fun. From this idea he came up with 14 forms of fun, though in no particular order; beauty, immersion, intellectual problem solving, competition, social interaction, comedy, thrill of danger, physical activity, love, creation, power, discovery, advancement and completion, and the application of an ability (Garneau 2001). Gavin Sim, Stuart MacFarlane, and Janet Read suggested, in their study measuring the fun, utility, and learning capacity of computer software for children, that Garneau's list be caveated to specify the concept of pleasure throughout (Sim, MacFarlane, and Read 2006). Fun, then encompasses a broad range of activities, but includes a narrow range of emotions and sensations; fun can be had doing just about anything as long as one is determined to enjoy it.

Fun is the overlying motivator for children's activities. They seem programmed to seek fun, but not because their existence is frivolous or lacks seriousness, rather the opposite. Fun is the motivator for play, hence, the mechanism for learning.

Marc Prensky, CEO and founder of Games2Train, an electronic game developer, presents a simple definition of fun from the *Oxford English Dictionary* as a "diversion

amusement, sport…source or cause of amusement or pleasure" (Prensky 2001, 05-2). In his book *Digital Game-based learning*, the chapter title that holds this definition says much about how fun should be considered, it is "Fun: the great motivator" which really puts the concept into focus. It is fun that motivates people, often, to perform at their best. He relays the outcome of a study by William H. Starbuck, an American University professor and well-cited educational author, and Jane Webster of Pennsylvania State University's Smeal College of Business Administration, titled "When is Play Productive?" in which they summarize that "playful activities elicit involvement and give pleasure" (Ibid. 05-9). So play is an activity that is pleasurable. It is easy to understand why fun is attractive to people, then, and especially so for children, since fun can motivate people to want to participate repeatedly simply to derive pleasure, and motivate them to participate in action they have little or no experience with (Ibid. 05-10).

Jenny Veitch, researcher for the Centre for Physical Activity and Nutrition Research in Australia, researched the role and use of public open space as it affected children's health. Her study showed that understanding children's motivation for play is essential to being able to encourage them to engage in adequate levels of appropriate physical play through design or policy (Veitch, Salmon, and Ball 2007). Likewise, in "Children's Participation in Physical Activity: Are we having fun, yet?" University of Minnesota Department of Psychology and Physical Activity professor Maureen Weiss, PhD, points out that it is intrinsic motivation, born out of fun and enjoyable experiences, rather than external sources that secures a child's continued interest in physical activity (Weiss 1993). Ian McManus researched the attitudes toward fun and their relation to

personality and lifestyle for the University College London, UK and remarks that it is the activity itself that is the reward, requiring no other external reward than fun (McManus and Furnham 2010).

The drive to partake in play is vital because play is foundational to proper development. It is through play that children learn about life. When in the flow of fun the mind is relaxed and motivated. It is in the perfect state essential to proper learning(Prensky 2001). Prensky sites that Diane Ackerman, PhD, states it most simply in her book *Deep Play*, “Play is our brain’s favorite way to learn things” (Ibid, 05-6). Simply put, if there is no fun, there is no play, and no learning.

Play’s vital role in child development cannot be understated. Play benefits the child’s mind and emotional development, but is also the foundation for understanding the environment. Physical play, where large muscle groups are trained and strengthened, is a motivation that children cannot suppress (Bingham v Board of Education 1950). Engaging their minds constructively is about more than relieving a case of fidgeting. As Lady Allen of Hurtwood, English landscape architect and promoter of child welfare, explains in her seminal work, *Planning for Play*, that children need a place to develop self-reliance “so limbs will become obedient to will” (Hurtwood 1968). Children, if not actively and constructively engaged in learning or play, will rapidly become bored and seek the next play opportunity elsewhere. At this stage of development the brain and body understand that agreement and unity must be quickly and precisely constructed between the two human spheres or there will be less of a

chance for success and continued existence. Play is a child's expression of the human will to thrive and live. To deny that drive is to deny a child of life.

There is research that directly ties types of risk to fun, itself. McManus and Furnham's research points out that children typically find risky situations to be "fun" and are predisposed to find it so (McManus and Furnham 2010, 160-166).

Risk invites play, because it creates fun, and through this powerful engagement becomes the tool for learning. Young humans have learned about their world by confronting risk through play since the beginning of humanity (American Journal of Play 2008). Risk enhances play. Play is both the mirror and the activity. Children discover courage, power, friendship, self-reliance, and trust through play. Children cannot resist the urge to take risks and test themselves against small and large challenges; the tall tower, the interesting sound, the mysterious maze, the new kid, and the funny shapes. Children justify their play be saying that it is fun (Linzmayer and Halpenny 2013).

RISK

Risk is a fact of life that children must learn to deal with properly. How Americans and the American legal system view risk, as synonymous with danger, has negatively affected play value, since risky apparatus and equipment add play value to playgrounds.

Understanding that risk and danger are separate concepts and separate entities that can be separately controlled in the designed playground, is essential to allowing provisions in the law for proper playground design. Likewise, since a playground's

function is to provide degrees of risk, engineered in order to entice play, is critical to understanding how vital it is that playgrounds not be seen as places where less risk improves their function. Play experts, like Dr Joe Frost, and Helen Little and David Eager who study risk's role in play, assert that the role of playgrounds in today's society is to provide risk, in controlled ways, so that children can develop properly (Frost 2006, Little and Eager 2010).

Webster's online dictionary defines risk as "the possibility that something bad or unpleasant (such as an injury or a loss) will happen". Understanding that risks exist at all levels, from highly probable and hazardously harmful, to not very likely and mildly annoying, is essential to understand that risk is ever-present, existing as the confluence of magnitudes, probabilities and safeguards. There always exists, on a scale from low to high, and that risk will manifest and on a corresponding scale, from ultimately devastating to barely noticeable. If there are risks that one does not consider safeguarding against throughout the day, such as getting hit by an asteroid, it may be because the likelihood is very low and nearly impossible that it will occur. Likewise, one usually does not put energy and time into guarding against floral scented breezes because their probability of doing harm is extremely low.

On the playground children can learn to recognize situations where risk is present and through this daily activity they become the keepers of their own health, confident and powerful. Dr, Frances Wallach says that "[t]he difference between "risk" and "danger" on the playground is one of opportunity to use judgment on the part of the user…A hazard [exists] where the user cannot evaluate or see the potential for injury.

Risk allows the user to identify the challenge, evaluate….and decide how to deal with it" (Wallach 1992, 54). This definition is reflected in the work and words of German playground designer and engineer Julian Richter, principle of one of Europe's most prolific and successful playground design firms, Richter Spielgeräte. At the 2013 ASLA Conference he emphasized, repeatedly, that playground design is a practice in balancing risk and play value to avoid any danger. Since the children's development is shaped by their experiences, "risk is necessary to learn self-protective behavior" (Chermayeff and Richter 2013, 2). So risk in play is essential for children to learn how to assess different levels of risk, to take chances, or to analyze and recognize danger and take appropriate steps to deal with each accordingly. As adults who seek to provide a proper upbringing for children, confusing risk and danger does the children no service. Mistakenly calling a situation of risk on the playground, where the possibility of injury is low but present, a danger - a situation where the child will probably be harmed - is making an unwarranted leap of judgment that denies a child the opportunity to become accustomed to seeing and recognizing risks and making the decisions on their own that will preserve their health.

Maggie Mayfield, PhD, is principal investigator of the Community Play Spaces study who studied 287 community play spaces to research the social interplay between play, children, parents, community and their environment. She quoted three other established play and childhood specialists, Dr. Joe Frost, Wortham, and Reifel, to summarize an answer when the Canadian Child Care Federation asked her if "de-risking outdoor experiences and playground equipment" had gone too far. She cites a

study by Frost, Wortham, and Reifel in 2001 in which she says they have criticized the "dumbing down" of play equipment, resulting in children being unchallenged and easily bored with existing play opportunities, and more apt to use non-equipment forms of play or unintended use of the equipment (Mayfield et al. 2009, 8).

Children who do not get exposed to risks and do not learn to judge risk and differentiate it from danger, and do not practice and learn overcoming one and avoiding the other are at grave risk of mistaking these separate aspects of life, as well as mistaking their own abilities to deal with them in their futures.

Perhaps the most striking example of children not being able to recognize risk or danger is the fad of “car surfing”. Teens will stand or sit on cars while their friends drive the cars and the object is to not fall from the car. There are many tragic deaths and mutilating injuries attributable to this fad of bad judgment (Copeland 2012). The risk of falling is not even hidden. The physics of the act are self-explanatory, or should be to children who are knowledgeable. Since children seek risks and will do so throughout their lives, it is important to expose them to as many controlled risks as possible so that they gain experience in how to assess risks and learn how to mediate risks, on their own, so that they are mentally equipped to choose avoid dangers, like car surfing. Eliminating risk from the playground poses the real danger of setting children up for failure.

There are two very different perspectives to consider when defining risk; that of the wary caregiver, and that of the child. Caregivers perceive risk as the potential for

harm. Children at play, on the other hand, perceive risk as the incentive to play, the opportunity to discover, overcome, and learn.

Lady Allen of Hurtwood states that,"[i]t is a rewarding experience for children to take and overcome risks, and learn to use lethal tools with safety. Life demands courage, endurance, and strength…" (Hurtwood 1968, 17). Dr. Wallach notes in a 1992 article for *Parks and Recreation*, that children "…seek challenges and learning experiences in play and this has a direct correlation to risk taking" (Wallach 1992, 52). Dr Wallach continues, making special reference to the reason for children's risk taking. The "risk" involved in play is the presentation of challenge, the enticing obstacle to be overcome, the element which creates fun and continues to engage children. When this element is absent, through a lack of design or because the designed challenge has been conquered "…children will seek the next level of difficulty to overcome in an activity…Having learned how to descend a slide in the proper fashion, children will go on to other more difficult methods" (Wallach 1992, 53). This intense drive to explore and overcome may appear like danger seeking to the adult eye because a child may even try to play on obviously broken equipment, but Wallach reminds us that "one of the challenges in using broken playground equipment is to identify unique ways to play on it *because* it is broken" (Ibid.). Dr. James A. Peterson, Professor emeritus at Indiana University, notes in his article, Playground equipment height, the work of Dr. Lynn Barnett-Morris, a child development specialist with the University of Illinois who says that, "Without adequate challenge children soon loose interest and the playground becomes an expensive waste" (Peterson 1992, 35). Throughout the thesis the term

"risk" will be used in both senses, as that of a probability for harm and as the incentive for adventure. Reading the term in context will alleviate any confusion.

Not all involved institutions view the term "risk" or the concept as compatible with play. Researchers and policy advocates find that playground operators, like municipalities and school boards, frequently cite the voluntary CPSC standards and cite the fear of law suits as the top reasons for whole or partial playground closure (Kahn 2005, Lombardi 2009, Chambers 2010, Harold 2010, Brandi Powell 2013, Zimmerman, Kramer, and Trowbridge 2013). School administrators worry about injuries and the CPSC standards address these fears by seeking the, "reduction of playground-related deaths and injuries" (U.S. Consumer Product Safety Commission 2010, 3). The contradiction, however, is that the CPSC standards, seeking to create useful playgrounds, depend on litigation and thereat of litigation that becomes the barrier to creating effective playgrounds. School Administrators, particularly, seek to take actions that avoid any risk. The CPSC standards, by becoming the measures that "risk managers, insurance companies, or others may require compliance" with (Ibid.), encourage risk aversion, through promoting litigation. Often lacking the cash reserves to maintain compliant school playgrounds, administrators avoid non-compliance by removing apparatus, or even eliminating recess. The desire to remain free of legal pitfalls is a prime motivator in a legal system that does not see risk as compatible with children's playgrounds. The American legal system does not recognize risk as an inherent aspect of the play environment because the only legally recognized standards, those of the CPSC, seek to eliminate risk.

It is the confusion of risk that has driven a legal framework that is hostile to play, and the legal framework that has driven the misidentification of risk as danger. This confusion contributes to the American child healthcare crisis and uncoupling this confusion is the key to a cure.

PLAY VALUE

Since children's play spaces are fixed locations, it is vital that these spaces be attractive enough to make children want to return. Including risk in the design creates play value that draws children to the space repeatedly, perhaps for different reasons every time.

Play value is a measure of how much play one can get out of something. Better play value is held by things, places, and spaces, which are compelling and encourage children's involvement. Interesting places, changing objects, mutable materials, and objects that children can manipulate have high play value. Jean Lee Hunt described the intrinsic value of playthings as follows,

> The play of children on it and with it must be spontaneous [and it must have] adaptability to different kinds of play and exercise. It must appeal to the imagination of the child so strongly that new forms of use must be constantly found by the child himself in using it. [It should be] adaptable to individual or group use. It should lend itself to solitary play or to use by several flayers (sic.) at once (Hunt 1918).

Play value is what draws children to play, and it s very important when the built areas that are safe for their play -- away from or protected from traffic, natural dangers, and disturbances – require a commitment of resources to a single, fixed location.

Children must be compelled to return to the playground over time and as they grow, so the design, location, apparatus, and situation must all contribute to play value or the resources are wasted. Play value creates, and is created by, excitement, discovery, and risk. Risk offers the challenge that children want to conquer; it is what brings them back.

The attractiveness that draws children into play can also be described as play value. Märit Jansson, a Landscape Manager, performed a study of play spaces for Swedish University of Agricultural Sciences and remarked that "Content, variation, complexity and manipulability have been identified as important characteristics, affecting play value..." (Jansson 2010, 67). Likewise, when children can change and manipulate the play environment over time, high play value is achieved since there is something interesting happening all the time. Regarding play value, David Ball points out, in Mayfield, Chen, Harwood, et al., "Community play spaces: promoting young children's play", that measuring play value is problematic because it is difficult to measure, and is often left out of the analysis (Mayfield et al. 2009). Though calculating it quantitatively is not appropriate or possible, play value is extremely important to a successful play area, and is a key generator of fun.

Designers seek to create apparatus with play value, and these often involve risk. Apparatus that have play value are those aspects of setting and environment that; attract attention, invite investigation, encourage interaction, challenge the child to make choices, change over time, and progress in complexity and difficulty (American Journal of Play 2008, Ball 2002, Jansson 2010, Christiansen 2011). Many prominent

playground designers, like Julian Richter, and child play specialists, like Dr. Joe Frost, assert that a degree of risk is essential for effective free play (Ball 2002, Brussoni et al. 2012, Bundy et al. 2009, Hurtwood 1968, Mayfield et al. 2009, Solomon 2005, Wallach 1992, Zalaznick 2014, American Journal of Play 2008). Risky elements on the playground are what create the challenges that make children want to go back and play again and again. Risk engages children because it creates fun.

Risky play encourages physical interaction and beneficial physical activity. During free play, risk is created and conquered by children and free play is recognized by the American Academy of Pediatrics (AAP) for its health and developmental benefits (Ginsburg and Health 2007). Child development specialists assert that exercise is critically important and proper free play is the primary vehicle for that (National Association of Early Childhood Specialists in State Departments of Education 2001, Catherine L. Ramsteter 2010, Hannon, Rao, and Arslanan 2005, Pellegrini 2008). Risk positively affects children's physical activity levels by encouraging free play.

Public playgrounds are supposed to provide free play opportunities since neighborhoods and homes are seldom equipped for demanding free play, but most modern playgrounds are not providing proper play opportunities because they lack risky elements that draw children in to play. Research into the epidemic of childhood obesity suggests that American children are not getting enough physical activity in their play (Belluck 2005, Colabianchi 2009, Frank 2006, Hannon, Rao, and Arslanan 2005, Ogden 2012). Also, the epidemic of teenage danger-seeking behavior questions whether children are learning the difference between risk and danger as they grow. Increased

sedentary time and a lack of risky play is culminating in a national childhood health crisis, and yet, fearful adults shelter children from all risk, keep them inside, and buy them sparkly, mesmerizing baubles to quiet them. The silence could be their swan song. Dr. David S. Ludwig, director of the obesity program at Children's Hospital Boston said that, “this generation of children could be the first basically in the history of the United States to live less healthful and shorter lives than their parents" (Belluck 2005).

SAFETY

Safety in a risky environment is the responsibility of the user. Designers can utilize forms that help the user achieve safety but statistics show that injury free playgrounds do not exist. The definition of a safe playground should be decoupled from the idea that it also must be injury-free.

The world is an inherently hostile place. Threats to health and welfare abound. Humans seek the negation of these threats through practicing safety, which is defined as “freedom from harm or danger” (Merriam-Webster 2014). But being safe is defined as “not able or likely to be hurt or harmed in any way : not in danger”. The definition of “safety” holds a contradiction of degree and its meaning is open to interpretation. What is meant by “not able” is an absolute definition as is “not likely”, but “ability” and likely” differ by degrees of certainty where “ability” is positive and “likely” leaves an element of chance, and engenders an expectation of outcome because anything could happen, but it is just “not likely”. In short, the idea of being free from harm is ludicrous, yet many parents apply the absolute interpretation of safety where their children are concerned

and expect that the “safety” that happens to their children will mean “not” harmed, but the reality, as statistics show, is that safety is not ever absolute.

The most appropriate and realistic way to think about safety is that efforts made will most likely not bring harm or hurt. After experiencing childhood, themselves, and taking the bumps and bruises, broken bones, and hospital visits, it is difficult to imagine that an adult would think that the life of their child will be any different, that it will “not” involve some degree of hurt or harm in some fashion? Statistics readily point out that life free from harm is an unrealistic expectation. When injury does occur, as a study regarding playground design safety, “The risk is that there is ‘no risk’: a simple, innovative intervention to increase children’s activity levels”, in the March 2009 issue of *International Journal of Early Years Education,* Anita C. Bundy, Tim Lucketta, and Paul J. Tranter, et al., points out, “Humans seem to want to shift responsibility for adverse circumstances outside of themselves” (Bundy et al. 2009, 34). Parents have a tendency to seek compensation for the perceived wrong that has been done to their children and the vehicle for that is torts.

The reason for tort law, the recovery of damages, may hold the key to why parents seek an absolute ideal of safety for their children, because of the financial burdens that arise from harm to the child. Americans have been convinced that safety as an absolute, can be achieved on a playground, partly because of the formation of the CPSC and its goal to improve public safety.

The CPSC statistics for childhood playground injuries, compiled in 2001 for the year dating from November 1998 through October 1999, estimated 205,850 playground

injuries were treated in hospital emergency rooms (Tinsworth and McDonald 2001). A later CPSC report for years 2001-2008 estimated the number of annual playground injuries, calculated using years 2006-2008, to be 218,851(O'Brien 2009). This report noted that of these emergency room visits, 17% were reported as “no injury”, contributing to the vast majority of 95% that were “treated and released”, while only 3% were hospitalized or required continuing care (O'Brien 2009). As a percentage of the 63.2M children in the country at the time, the numbers of American children who reported to emergency rooms for playground injuries represent only 3.4%, and of that the large majority were treated and released. The evidence clearly shows that the proper definition of a safe playground should be one where injury is “not likely” and yet parents still insist on having injury-free playgrounds. Safety is a paramount concern for those responsible to children because it is their duty to see that the children develop properly, contribute to society, and have children of their own. But no realistic evaluation of the success of this endeavor can be deemed a failure if any harm comes due. All actions taken to promote safety must be considered against the risk of the predicted threat. Risk, then is the key element to evaluate in providing safety.

For one to understand these concepts is evidence that one has performed, perhaps informally, a risk assessment. Risk can be assessed quantitatively or qualitatively in a well-known situation with a present recognized threat or hazard (Department of the Navy 2009, 1-4). A short discussion of qualitative and quantitative risk will help to clarify these important concepts.

A valid quantitative risk assessment puts dollar values on the variables to come to a clean solution. This kind of risk assessment needs two elements, the magnitude of the potential loss, and the probability that loss will occur when the event happens.

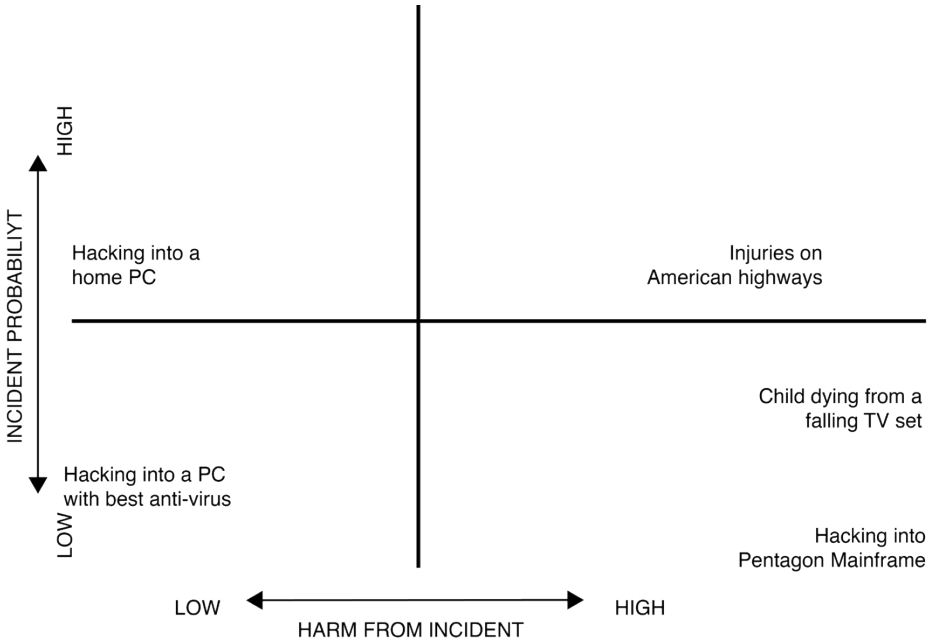

Figure 3. Probability graph adopted from Sims 2010.

For example, a quantitative risk assessment of having outdated antivirus on your computer would compare the likelihood of someone cracking your security with a virus (high probability) against the loss that will occur if someone does get into your system (low cost, since nothing is kept on there but old word documents from 3rd grade). Taking action or safeguarding would cost some money, maybe $85 for the good quality anti-virus. One could weigh that cost ($85) against the cost of the loss of data, $6 maybe and quantitatively decide to accept the risk of losing $6 worth of documents the next time a virus hits. Sometimes the factors involved in risk assessments are rather complex, and a more subtle variety of risk assessment is utilized, the qualitative assessment.

A qualitative risk assessment compares the assets, vulnerabilities, threats, impacts, likelihoods, and safeguards on a comparative scale, seeking to make value judgments in relation to each other rather than in dollars, because the complex systems involved are so varied in their interactions (Sims 2010). Nuclear power plants are assessed through qualitative assessments as systems for nuclear reactions are protected by systems for delivering cooling liquids and monitoring systems interface depending on the criticality of the activity to protect a part of, or the whole system. In this kind of risk assessment, one arrives at several decision points and at each the risk is either acceptable (too expensive to reduce risk), or it is mitigated by accepting the cost of taking steps to reduce the present risk. An aggregate chain of systems relying upon systems is devised to mitigate risk. Usually, most people are unaware of the many decisions that are made regarding personal risk, daily, that are made based on a qualitative risk assessment paradigm. They are so accustomed to recognizing risks and taking steps to reduce the risk that they don't stop to break out graph paper to perform this risk assessment. It is a matter of habit and, according to many researchers, these habits begin at childhood and follow throughout one's life (Hurtwood 1968, Wallach 1992, Chermayeff and Richter 2013, Hannan 2012, Frost and Sweeney 1995).

DANGER

Webster's online dictionary defines danger as "exposure or liability to injury, pain, harm, or loss". The key element, and differentiation between danger, and risk or safety, is exposure to harm. Dangerous situations involve a removal of the conditions that are

implemented to provide safety, the physical or mental buffers that insulate the body from harm. Danger is also a manifestation of conditions that expose risky elements.

As an example, Safe Kids Worldwide, a global organization dedicated to preventing injuries in children says that one should, “Teach children that pushing, shoving or crowding while on the playground can be dangerous” (Safe Kids Worldwide 2014). In this situation, danger manifests from the act of kids pushing each other, but the nature of the danger is not defined. Because playgrounds are designed to be places where children learn about their environment and take those lessons into life, playground dangers are to be avoided and prevented. Safe Kids Worldwide reminds parents that,

> When a child dies or is seriously injured, the lives of families and entire communities are changed forever. But these tragedies don’t have to happen. The important thing to remember about preventable injuries is that they are preventable. They often occur in predictable ways and can be completely avoided with the right education, awareness and planning (Safe Kids Worldwide 2014).

It is the adults’ responsibility to make sure that danger does not exist in the play environment by allowing children to see risk, analyze it, and conquer it. As Julian Richter stated at the 2013 American Society of Landscape Architects conference, the difference between risks and dangerous situations is that dangers cannot be seen and avoided. He cited the examples of; the toxic chemical treatments in wood, the corroded and structurally unsound metal monkey bars, and the sharp, hidden bolt end as examples of playground dangers. These situations and conditions are dangerous because there was no way for a child to see, as they are playing, that the condition

exists, and take measures to protect themselves from it (Chermayeff and Richter 2013). It was the adult's responsibility, by inspection, and design, to make sure that these conditions do not exist, and at the same time, give play value to the environment.

In American history, the playground evolved as the prime environment where children can engage in physical play. Proper playgrounds contain a mix of safety and risk that creates play value and provides fun. It has been the goal of the courts, designers, the government, and parents to strike a balance between risk, safety, and fun within their particular realms of influence and expertise. Unfortunately, there has been little consideration between all parties for the effects of their desires and action on the others and policies have been made in virtual isolation that detract from American playgrounds' purpose.

CHAPTER 3

COURTS MAKING NATIONAL PLAYGROUND POLICY

This chapter follows the rise of risk avoidance culture in America, through examining the significant mishaps and court decisions that shaped early playground design changes from the late 1900s to 1972.

The creation of the US Consumer Product Safety Commission (CPSC) in 1972 drastically changed how courts, parents, and playground operators affected the nature and character of playgrounds. Prior to 1972, American judges supported the primacy of municipal or sovereign immunity to protect government function and this created a propensity toward risk avoidance in the population. Along with this, playground risk began to be perceived as something akin to danger. An informal but very real national playground policy, made by people who were neither educated about nor conversant in the function of playgrounds, began to change playground forms from1900-1972.

LITIGATION AND LEGAL ACTIVITY PRIOR TO 1900

Playground litigation is particular and specific because it involves children. Because a child's sense of responsibility and knowledge of cause and effect is still developing, they cannot be held to the same standards of fault. Children are not expected to be conversant of the particular rules and laws that govern adult behavior. Because they cannot read or understand the implications of posted signs with complex messages, such as "Violators Will Be Prosecuted", and their compulsion to explore

outside of established boundaries, the law does not consider them responsible for obeying boundaries whether posted or social. This places a special burden on the adults of the land. A seminal 1873 Supreme Court decision, cited in *United Zinc & Chemical Co. v Britt et. al. US,1922,* that shaped the climate of playground litigation is one involving a child who was injured while playing around railroad cars. US Supreme Court first held in *Railroad Co. v Stout, 17 Wall. 657*, 1873, that the court:

> …strongly approved the doctrine that he who places upon his land, where children of tender years are likely to go, a construction or agency, in its nature attractive, and therefore a temptation, to such children, is culpably negligent if he does not take reasonable care to keep them away, or to see that such dangerous thing is so guarded that they will not be injured by it when following the instincts and impulses of childhood, of which all mankind has notice (United zinc v Britt 1922).

Though the railroad contended that the child was trespassing and the railroad could not be held negligently liable for harm that came to a trespasser, the court made it clear that, "the contention that a child of tender years must be held to the same understanding of the law…[and] under the circumstances of each, the child injured was a trespasser, was considered and emphatically rejected" (United zinc v Britt 1922). This established, as precedent, the sense that children are drawn to explore, sometimes even against better judgment, and that "[t]he attractiveness of the unguarded construction or agency — the temptation of it to children — is an invitation to enter the premises that purges their technical trespass" (Ibid.). This important decision from the US Supreme Court sets the standard of treatment where children and play are concerned.

This finding underpins the assumption that children need to be cared for and protected especially in the public realm where the landscape conditions can be interesting and sometimes dangerous. It also notes that when people place attractive situations or objects on their land they become responsible to use “reasonable care” regarding the welfare of the children who will attend. This applies particularly to the addition of playgrounds.

LITIGATION AND PLAYGROUND INJURIES 1900 - 1972

The years before World War II deserve special mention because of the near void in playground injury litigation. Though one can assume that children were prone to the same bumps, bruises, and mishaps in these years, there are very few court cases mentioning play. The courts’ defense of municipal immunity is unshaken, and governments provided play resources with few policy changes, even after injuries or deaths occurred. Likewise, playground forms changed based more on local resources and expertise than as reactions to accidents or injury. A search through Google Scholar, Google, Hein Online, and Lexis Nexis revealed scant mention of specific playground injury trial cases prior to 1946. This can infer that playground design was not drastically affected by torts, but by practical influences such as money, location, advise of playground designers and child advocates, like the American Playground Association (APA), and concerned parents, as Frost and Solomon suggest (Frost 1986, 4-9, Solomon 2005).

The most important legal device that affected playground cases of the twentieth century was Sovereign Immunity. The Cornell University Law School website defines municipal or sovereign immunity as: "freedom from lawsuits or other legal actions except when [a government agency] consents to them… [The doctrine of immunity holds] Federal, state, and local governments immune from tort liability arising from the activities of government" (Cornell University Law School 2011). In short, government agencies, providing for the general welfare of their citizens, cannot be sued for the actions that their agents take nor the conditions that these actions create. Because of previous precedent, parks and playgrounds were considered governmental functions, so their operation was considered within the umbrella of sovereign immunity. These cases serve to show the solidity of the concept in law and will contrast with later findings.

For a court to lower the shield of sovereign immunity and allow a tort suit, there must be compelling evidence of negligence on part of the municipality, or one of its lower functions. In a case where reasonable care was the deciding factor the court balanced sovereign immunity and justice for the death of a child. The North Dakota Supreme Court found in *Anderson v Board of Education, 49 N. D. 181, 190 N. W. 807, 810 (1922),* that neither the school board nor the city were liable for a child struck dead by a hard-seated swing on a school playground. The court noted a case in New York, *McCarton v The City of New York and the Board of Education,133 N.Y.S. 939 (1912),* which found the school board, but not the city, guilty by negligence when an improperly maintained (rotten) flagpole fell from a High School and killed a bystander (McCarton v New York Board of Education 1912). The court noted that the difference between the

New York case and the North Dakota case was one of negligence. The court decided that, “we… do not think the board of education would be liable…act[ing] in a governmental capacity in constructing the apparatus in question...The board in providing the apparatus…was acting within its governmental capacity, and for that reason is protected from liability” (Anderson v Board of Education 1922).

The Supreme Court of North Dakota noted, in its deliberations, there was no negligence, as was alleged, and that if the court relieved the defendant Board of Education from the protection of sovereign immunity, that:

> …damages could be brought with as much ease against [municipalities] as against the ordinary business corporation, and, if this would be the result, boards of education or school officers would have no immunity, and from fear and anticipation of such suits perhaps would fail to exercise the functions incumbent upon them in their governmental capacity, and this might very frequently result largely in failure of administration of school affairs” (Anderson v Board of Education 1922).

It is vital to understand that sovereign immunity was seen as a key aspect of the law that allowed government to function for the greater good of the community.

Even though the case description of the school playground apparatus may sway one to view the building and placing of it at a school as an act of negligence, the court was not persuaded. The suit describes that the school board, “notoriously erected and allowed to be erected, and suffered and permitted to remain for several weeks… several series of heavy swings… constructed of wood and iron, and suspended from poles or timbers which were … more than twelve feet in height, with heavy wooden iron bound,

or mounted plank seats, suspended by heavy iron chains" (Anderson v Board of Education 1922). It is an excellent description of a playground apparatus of the period.

The court summarizes the conflict that sovereign immunity must impose,

> [W]hile it is a maxim of law that for every wrong there is a remedy, that maxim does not seem to hold true in this and similar cases. While the plaintiff's loss is a real one and the damages suffered by her, no doubt substantial, the law affords her no remedy. The law, in effect says to her: You alone must bear this burden; that even if substantial damages might in some small measure assuage the great burden imposed upon you, through no fault of yours, nevertheless, in order to protect the public, you, widowed though you be, must bear the burden alone (Anderson v Board of Education 1922).

Without clearly proven negligence on the part of a municipality courts were unwilling to lower the shield of sovereign immunity for individual compensation. Citizens were responsible for their own injuries on public and government land, even though there was no standard of performance for providing services. The courts trusted government agencies to provide reasonable care.

There are more records of litigation concerning playgrounds after 1946. To determine exactly why there arose a litigious swell around this time would be an area for further study. This thesis will only examine the decisions and their effects on playgrounds.

Sovereign/municipal immunity became an issue in tort or liability case law, in 1946 with *Howard T. May v Board of Education, Union Free School District no.1, Town or Mamaroneck, NY*. The court ruled that the board of education had not acted negligently when a boy fell and cut his leg at a school playground.

May v Board of Education was a case in which a father sued the Mamaroneck Board of Education for hospitalization costs to his 10-year-old son who was injured on the school playground during noon recess. The boy was pushed to the ground by another group of children and the boy's leg was cut on the school playground surface - a cinder base with gavel and packed dirt on top - and required a trip to the hospital for stitches. The father alleged that the school grounds should be better maintained and that the fault of injury was the school's for allowing sharp cinders to protrude into the playground's top surface. The court held, citing three other contemporary cases where municipal/sovereign immunity was cited, that the school was not negligent and were it not for the unforeseen actions of the other boys that knocked the plaintiff down, the injury would not have occurred (May v Board of Education 1946).

A Pennsylvania court affirmed the protection of sovereign immunity and even specified a playground apparatus as "not inherently dangerous" in the case of *Gleason v Pittsburgh Housing Authority, 354 Pa. 381 (1946).* A father attempted to recoup damages for personal injuries to his 4-year-old son who fractured his skull when he fell from a slide that the Pittsburgh Housing Authority (PHA) erected and maintained. This case is an interesting window into the world of liability because the court had to evaluate the various possible factors that the PHA was allegedly responsible for, and which the PHA had to refute in court. The ruling notes that:

> An ordinary child's sliding board is not an inherently dangerous appliance requiring … a fence to exclude children from the use for which it is designed…Nor does the fact that the sliding board was erected over a cement surface rather than over some other type of surface afford any basis for imposing liability on the defendant for the injuries sustained.

> This would be but an additional factor of safety and raises no inference that sliding boards without such safeguard are dangerous or defective. While the character of the surface may have affected the extent of minor plaintiff's injuries it makes no difference in searching out the cause of the fall (Gleason v Pittsburg Housing Authority 1946).

Several cases are cited as precedence and exemplify the commonly accepted perspective, circa 1940s America, that children do get hurt while playing. Also important is that it is not the responsibility of the municipality to affect any measure beyond reasonable care as it was thought of, at the time. The aspects of reasonable care are mentioned in findings; the slide was not inherently dangerous, and the concrete surface was not inappropriate. In the eyes of the law, the child's unfortunate injury is precisely that; unfortunate, and was not contributed to by any actions or negligence on the part of the PHA. The court made note that the slide was of "the standard pattern in general use; an approved appliance for outdoor recreation and diversion of children; and that it was not defective in any respect" (Ibid.).

The key aspects here are the ideas of "general use", that the slide was "approved", and it was not defective. The idea of general use infers that the practice of putting up sliding boards was not novel or untested and this fits with the fact that the design was of an approved type, and because it was in good working order, the court logically concluded that this was indeed an unfortunate accident since all reasonable care had been taken. It is clear that common design, neither the shape and size of the slide, nor the fact that it was set above concrete caused the court to ponder exempting the PHA from sovereign immunity. If one were to consider the APA's suggestions that concrete is not an appropriate surface, and the fact that the APA recommended, and it

was standard practice of the time, to employ play leaders or supervisors, there may have been impetus to consider some degree of negligence, but exempting a government from sovereign immunity was not considered in this case. This measure of trust that the courts placed in governments indicates that courts had a sense that many governments were doing everything they could to take all measures of care to protect children while they were at playgrounds.

Utilizing play leaders was one additional measure of care that was common in larger settings, central city parks for example, that followed the seasoned and learned recommendations of the pioneers in play study. It was common practice in the early 20th century for playgrounds to employ play leaders, who were trained adults with a propensity for teaching games to children and supervising the activity so that it didn't become dangerous. Since children are prone to irrational actions, a play leader was the pillar upon which many municipalities built their degrees of "reasonable care".

In *Styer v City of Reading, 360 PA 212 (1948)* the Pennsylvania Supreme Court said that, "Children must be expected to act upon immature judgment, childish instincts and impulses; others, who are chargeable with a duty of care and caution toward them, must calculate upon this and take precautions accordingly" (Styer v Reading Pennsylvania 1948). In this case, a play supervisor was introducing the children to different game equipment, and while the play leader was attending to other children, one child's eye was injured by a badminton birdie. The court's decision was for the injured plaintiff. The court held that the city was not an "insurer of the safety of children playing on its public playgrounds... [but] noted that where the city undertook to manage

and supervise property, such as public parks and playgrounds, it must take care to keep property in a reasonably safe condition for those invited to come upon it, particularly in case of children" (Ibid.) This was practically unheard of and the dissenting justice quite presciently stated that,

> …the cause of [the] injury was [an] unforeseeable and wrongful act. To hold otherwise is to say, in effect, that the law imposes upon a municipality conducting a public playground an absolute duty so to control children coming thereon as to prevent any play involving an object likely to cause injury…with the result that … most of the standard objects and appliances in common use for the recreation and diversion of children -- such as marbles, baseballs, volleyballs, tennis balls, footballs, and many others -- may no longer be considered permissible for public playgrounds" (Styer v Reading Pennsylvania 1948).

Governments understood the benefits that safe and proper play conveyed to the community and took reasonable steps to mitigate risks and achieve that goal. This is to point out that child safety was very important to the cities and districts that implemented various recreational and play activities for children, but *Styer v Reading* was unusual in that it did hold government liable through negligence of one of its employees (Ibid.).

A failure of the proper practice, that is negligence, left municipalities open to liability beyond municipal immunity in some cases and in some states. Through the years the concept of municipal immunity has changed state-by-state, some hold it very rigidly while other states have opened the legal doors for torts against governments in specific circumstances. In this case the partial relief from immunity had much to do with the manner in which municipalities and their agents would examine the degree of risk that their responsibilities created.

It is important to note that in the previously mentioned cases the nature of the apparatuses, the height, style, or material, was called into question only once in *Anderson v Board of Education*, and that can be argued that it was for some emotional effect rather than any proof of negligence. Play leader supervision adequacy was questioned, as was the degree of care in maintenance, but the idea that the form of a playground apparatus could be improper was not yet explored. The fields were accepted as they were.

Many cases exist where some degree of official or municipal immunity prevented torts against governments at various levels. In addition to the immunity from torts, some cases show that even when children were injured or killed in parks or playgrounds the courts found that the municipality had taken reasonable care and there was no case of negligence. What can be seen about the overall climate of the country, as well as in the courts, specifically in *Cooper V. Pittsburgh, 390 Pa 534 (1957)*, is the degree to which the municipality as a provider of safety is presumed.

> The court determined that the municipality was not an insurer of safety for the children on its playgrounds, that the city had a duty of reasonable care, and that the city had met that standard in providing safe equipment and supervisors for the 25-acre playground (Cooper v Pittsburgh 1957).

In this case the actions of the child, not uncommon, contributed to the injury since she wound the swing's ropes up and then spun herself in the swing as they unwound. Rules for the playground forbade this, yet the plaintiff father charged negligence because the playground supervisor was monitoring a baseball game at the time, not watching the plaintiff girl. The court noted that if the park were to exercise the degree of

care which the plaintiff advocated, all children being watched every minute of the day, that degree of care "cannot be adopted because it would impose so high and so unreasonable a degree of care as to make the city, in practical effect, an insurer of the safety of every child who enters the playground" (Ibid.).

The citizen juries, it seems, granted municipal immunity, but an interesting aspect is revealed when the dissenting opinions for many cases are examined. The dissenting opinions in *Cooper v Pittsburgh* note that the case should have gone to jury since it is juries who should decide "reasonable care", given a thorough examination of all facts in the context of the society. Research of the available cases and decisions show that many findings where municipalities were not found negligent were, in fact, on appeals from jury verdicts that had, indeed, found municipalities negligent (Cooper v Pittsburgh 1957, Davis v Cordova 1972, Bingham v Board of Education 1950). This contradicts the original assumption and indicates that citizens and juries thought their governments should be just as open to liability as any corporation or business. Even though the public of the time thought that schools were guarantors of total child safety, superior courts subscribed to the underlying argument of the doctrine of municipal immunity and tended to negate the jury findings in favor of municipalities. Courts sought to allow the business of the nation to continue and avoid the possible situation, theorized in *Anderson v. Board of Education (1922)*, where municipalities become paralyzed and unable to act from fear of being sued.

In acting for the interests of the municipalities, the courts were effectively doing what national leadership had not done, making playground policy. It may be concluded

that this wild see-saw of decisions, judgments, appeals, reversals, and legal jockeying had the effect of making sure that no one knew where they stood before going to court and served to create psychological paralysis among municipalities, who feared not so much the expense of judgments, but the expense of going to courts. Therefore, citizens sought a surer means of compensation through seeking to prosecute a less protected source: the manufacturer.

RISK BECOMES DANGER

Toward the end of the first half of the 20th century, a trend in torts can be seen where governments are far less the target of torts than the manufacturers and distributors. The reason behind the shift in tort targets, to manufacturers, was because sovereign immunity shielded municipalities and government from negligence, and citizens had no recourse through them via the courts for recovering damages like medical and burial expenses.

David Owen is a distinguished torts scholar. He is the Carolina Distinguished Professor of Law and Director of the Office of Tort Law Studies at the University of South Carolina, he has authored several books on tort law, has advised US Congress, the British Law Commission, and the European Union on tort law matters. He authored a tort law article in 2005 stating that, “During the 1960s, the foundation of the legal regime governing product accidents… changed...from requiring a finding of fault… to strict liability…shift[ing] responsibility for product-related injuries away from consumers and onto product suppliers and manufacturers” (Owen 2004). “Finding of fault” requires

neglect of care, and “strict liability” is a legal concept that holds the party that is designated as “strictly liable” as responsible for damage even if there is no fault or negligence (Farlex 2014). It is useful to think of it as the difference between being negligent for not having a play leader on the playground (lack of care) or being negligent for building a slide from which a child falls (strictly liable). It is the nature of the product that is in question, and a degree of responsibility that the courts place on manufacturers for producing something that is, inherently, not designed to provide safety, but risk. This has far-reaching effects later in the 1980s but an examination of cases in the context of 1950s and 1960s American society is important because it sets the stage for reactions from industry, designers, and insurance companies to the public’s new position.

It must be noted that members of the American Law Institute, who debated the revisions to tort law which preceded and caused the shift toward strict liability, added comments in the code to assist in later interpretation. These comments, according to Owens, “make clear that the only duties of manufacturers of inherently dangerous products - such as alcoholic beverages, prescription drugs, cigarettes, certain foods, and other products whose risks cannot be designed away – are to avoid manufacturing defects and to warn consumers of hidden dangers…and does not allow a claim that such products are defective in design” (Ibid.) In this regime, then, consumers who sue manufacturers and distributors must prove that defects of design or manufacture that are not explicit or plainly obvious in the products, are not warned about. This idea is the impetus behind the warning stickers on playgrounds or games.

The concept of defect is important. In legal terms it varies from the common definition and a “defective product is one that cannot be used for the purposes intended or is made dangerous as a result of a flaw or imperfection. Such a defect might exist in the entire design of a product or in the production of a particular individual product” (Farlex 2014). In the eyes of the law, an essential element of an apparatus, such as the pivot point on a teeter-totter, can be considered a defect if it causes injury, since to cause injury is not the intent of the product. Such was the idea in the case of *McBurnette v. Playground Equipment Co. and Stelbar Cycle Corporation, 130 So Fl 2d 117 (1961)* where a father sued both the playground apparatus manufacturer (Stelbar) and the distributor (Playground) of the “Skyrider” swing for negligence when his 4-year old’s finger was amputated on the “Skyrider” swing, (Fig. 4).

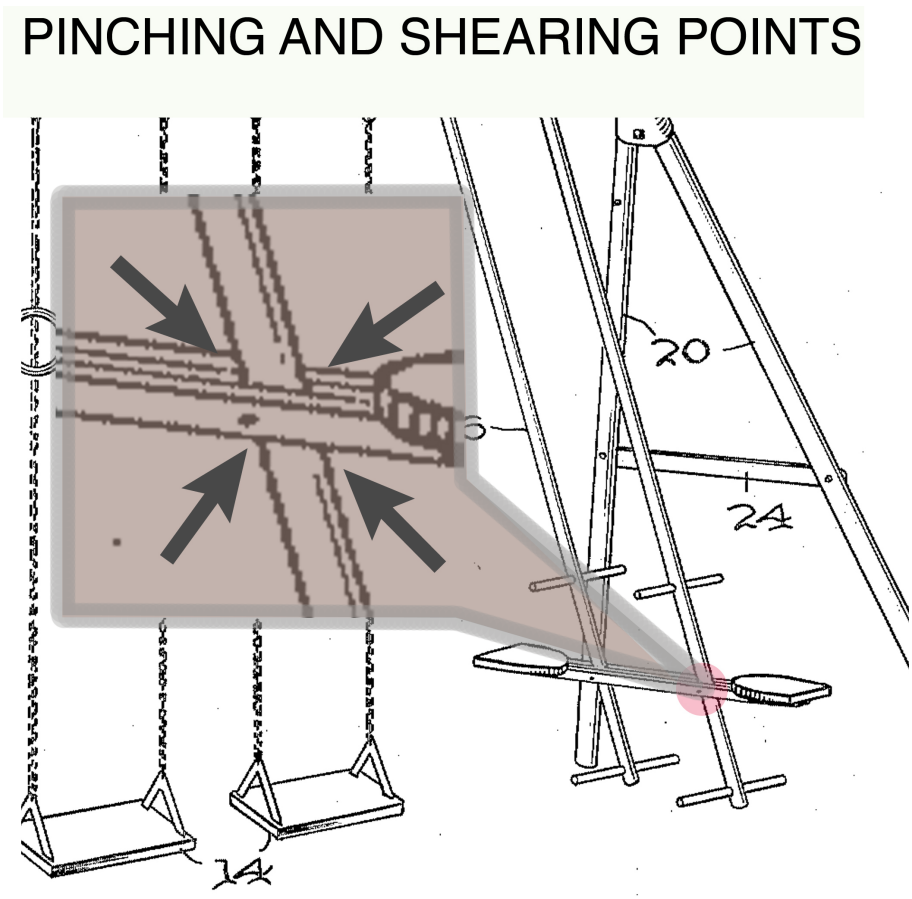

Figure 4. Skyrider Pinch Points credit: CPSC

The court found that the manufacturer was negligent in designing the apparatus with a defect since the support bars moved during operation in such a way that there was a pinching action and this caused the amputation. Likewise, the distributor was negligent because, “the defect in manufacture which made it dangerous was patent and was known or should have been known by the defendant retailer. As referenced in this case and stated by the Supreme Court in *Carter v. Hector Supply Co.*, a retailer may be held liable to a third party in a *negligence action* if the retailer can be charged with actual or implied knowledge of the defect” (McBurnette v Playground Equip Corp 1961). The fact that there was legal precedent for a case against distributors turned the

industry around rather rapidly. With no established, industry-acceptable means of warning the customers to keep child's fingers out of the pinch points, the warning aspect of the law was moot and designers and distributers were negligent for accidents from playground apparatus. Designers, manufacturers, and distributors had "notice" to be very wary of what they produced and sold to the public.

What made the situation very difficult and confusing was that manufacturers had no idea what the public or the courts would decide was dangerous. As mentioned previously courts were making decisions, by overturning jury decisions where governments were found negligent. A search in Lexus Nexus for legal terms "playground", "injury", "liability", and "reasonable care" found14 State Supreme Court playground cases between 1947 and 1962 that addressed municipal negligence and all had decided for the defendant, the municipality, only by overturning the previous jury decision for the plaintiff. These decisions, and others like them in lower courts, had the effect of making policy and it created a legal line between the concepts of danger and risk. Though the public, through jury decisions, was finding the government's "degree of care" insufficient, the courts found the governments' care proper and overturned the jury decisions. It is a question for further research to discover why the public already had decided that playgrounds contained elements of danger and that reasonable care was not being used. It can be assumed that the public would not have been suing governments over injuries if the public had not sensed danger in the system.

Susan Solomon notes that the interesting, memorable, attractive, and exciting playgrounds of the post World War II period were the work of architects, sculptors and

artists (Solomon 2005). Manufacturers of playground apparatus were generally not specifically trained to design playground equipment or apparatus for playgrounds. They were extensions or divisions of gutter companies, pipe manufacturers, bicycle garages, and other light industry. Their experience with children was very limited, but they focused on providing excitement and education (Ibid.).

The courts' tendency to side with governments effectively protected governments in their pursuit of duties like parks and playgrounds (thus inferring that the practice had no danger, only risk). Risk was the duty of the citizen to notice and avoid. Danger was something governments were tasked to eliminate as part of their governmental duties. Citizens, expecting risk-free fun, had no means to address their concerns about playground injuries, since the courts were dismissing their complaints, and courts allowed the governments to provide risky playgrounds. It is assumed that the public either, did not consider risk to be an important element of play, or the public considered it an integral part of play to the degree that play and risk were not separable, but the public did consider danger to be the fault of those responsible.

It is not until the 1970s and 1980s, when courts began to allow suits that challenged sovereign immunity (and some municipalities started to close playgrounds because of law suits) that some citizens began to realize that the risk in playgrounds that the law had preserved through providing sovereign immunity actually had immense value to playgrounds. That risk, which enticed children to travel many blocks to play in playgrounds, may have existed only by happenstance and not as any government's design goal, but a few people recognized that it had immense value.

There were far-reaching effects on industry when the targets of litigation shifted from governments to manufacturers. In the pre-1972 legal environment there was no standard of design except that which precedent had formed. As mentioned in *Gleason v PHA,* the playground apparatus (a slide) was of "standard" design, though no technical specifications had created such a standard, and common sense coupled with experience dictated which designs were safe enough and fulfilled their functions for playgrounds. When the target of torts changed, though, the law demanded that there be "defect" in the products and that manufacturers become "strictly liable" for their products, otherwise, there could be no compensation for injury and death.

This shift of legal burden forced lawyers to show that the products, designed with "risk", were actually "dangerous" and it is in this shift of responsibility that the origin of the confusion between risk and danger is formed. Though the designs and their uses did not change, it was the skillful confusion of the concepts in court that was necessary in order for compensation to be awarded under a set of laws that did not understand and could not deal with the need for risk in playgrounds.

CHAPTER 4

RISK, RALPH NADER, THE CPSC, AND GLOBAL THERMONUCLEAR WAR

The general sense that industry was rarely held accountable for its defective products was on nearly every American's mind through the 1960s. Rachel Carson's 1962 book Silent Spring documented how industrial waste had harmed animal and human health (Griswold 2012). Cigarette manufacturers were on trial for faking evidence that their product was not harmful and the industry had conspired to suppress the evidence of harm (J.D. 2012). Ralph Nader's article "The Safe Car You Can't Buy" accused auto manufacturers of conspiring to keep their products cheap and appealing, rather than make them safe (Bollier 2008). The United States Secretary of Defense, Robert McNamara, announced that the United States and Soviet Union had reached a military milestone of Mutually Assured Destruction (MAD) where each had the capacity to destroy all life on the planet through global thermonuclear war (Strategic Studies Institute 2004). It was a time when threats loomed large and seemingly wherever the public sensed risk it was only because overpowering, damaging danger was very near, indeed.

It was in this environment that Ralph Nader, a Harvard Law graduate and University of Hartford law professor, became the catalyst for a decade-long consumer advocacy movement that still has no equal. Nader's efforts to institute government standards and regulate many industries in the U.S. culminated in the Federal Government forming four new agencies and passing no fewer than seven Federal Acts,

creating laws that regulated everything from playground equipment and automobile safety, to industry's responsibility for clean air and clean water (Bollier 2008). The regulations these agencies strove to implement concerned safety, as Nader's book title foretells. The concept of safety that the public was looking for when Nader and his team of young lawyers confronted industry leaders and government officials in face to face debates, was not freedom from risk, but freedom from ever-present, large-scale danger. The Publicity that Nader's Raiders generated, forced the Federal government to tackle issues that affected hundreds of millions of current and future Americans. They took on Issues like, nuclear power, industrial pollution, automobile safety, workplace health and safety, so playground safety seems to be misplaced under a Federal Agency at all. However, the Consumer Product Safety Commission (CPSC), the Federal Agency whose charge is, "protecting the public from unreasonable risks of injury or death associated with the use of the thousands of types of consumer products under the agency's jurisdiction" (CPSC, 2014), is a proper home for oversight of products like hair driers, stereo systems, garden tools, and baby products that can cause harm and even horrible death to individuals.

The CPSC is the agency responsible for developing voluntary safety guidelines for playground equipment as one of the 15,000 consumer products under its jurisdiction "used in and around the home, in schools, in recreation, and otherwise" (USCPSC 2012). The 1972 Consumer Product Safety Act (CPSA) established and defined CPSC's basic authority and authorized the agency to develop product standards, and institute and enforce product recalls and bans (CPSC, 2014). The CPSC was founded

as a reflection of two ideas: that safety could be increased, and it could be done through implementing product standards. These two ideas place playground apparatus/equipment under the agency's pervue. A third factor, the inherent and designed inclusion of risk, has confounded the CPSC's efforts to simultaneously make playgrounds safe, and proper.

The CPSC utilizes the special technical expertise of the American Society of Testing and Materials (ASTM) to form the foundation of its technical guidelines. The ASTM's mission statement describes it as an organization that strives:

> To be recognized globally as the premier developer and provider of voluntary consensus standards, related technical information, and services that;
> - Promote public health and safety, support the protection and sustainability of the environment, and the overall quality of life;
> - Contribute to the reliability of materials, products, systems and services; and
> - Facilitate international, regional, and national commerce (ASTM.org 2014).

The CPSC utilizes ASTM scientific expertise to create standards for such items as, electrical protection circuits, and the minimum material strength in shovels, shears, and chain saws. ASTM standards spell out the required material composition and performance parameters of resilient playground surfacing, and also define the maximum/minimum space allowable between guardrail bars that prevent a child from slipping through or getting stuck. Because of its technical focus and scientific methods, the ASTM has been the touchstone source, the wellspring, of CPSC playground guidance authority. Scientific testing can be readily verified and repeated, so its

authenticity is not in doubt and is widely accepted as the keystone method for providing physical safety especially where mechanical, physical apparatuses are concerned.

The ASTM/CPSC standards' verifiability serves to make them very appealing as courtroom evidence and as the foundation documents for industry codes. For home products like ceramic glazing, electric blenders, baby monitors, and air conditioners safety is a measure of eliminating risks because the majority of home products do not require a degree of risk in order for them to operate properly. The conflict arises when the same, sound philosophy used in making baby cribs safe, through eliminating risk, is applied to a product, such as playground apparatus, whose main function is providing controlled and engineered risk for a purpose.

ROLE OF CPSC AND ASTM

The CPSC issued its comprehensive Consumer Product Hazard List in September 1973. It listed the "consumer product categories which appear to pose the greatest threat of injury to the American public" (CPSC 1973). The hazardous product categories had been scientifically and systematically determined based on the "number and severity of injuries treated in hospital emergency rooms" (Ibid.). Utilizing the CPSC's computer database, the National Electronic Injury Surveillance System (NEISS), information from 119 carefully selected major hospital emergency rooms around the nation helped determine the top 50 hazardous products, and the CPSC determined the top hazards to certain age groups, as well. For children under ten, the top hazardous products were: bicycles, stairs, ramps and landings; non-glass doors,

cleaning agents, tables, beds, football, and swings; slides, see saws, and playground equipment (Ibid.). This list was a challenge to industry, according to the first CPSC Chairman Richard O. Simpson, to develop voluntary safety standards to protect public interest.

S. John Byington, CPSC Chairman from 1976-1978 and prominent lawyer and legal advisor to government agencies, was very concerned about how liability and tort law changes would affect public safety. As CPSC Chair he had held firmly to the idea that voluntary compliance from manufacturers and industry to their own improved standards was the key to successful and meaningful standards and regulation. He thought that direct government involvement was so powerful that it could change paradigms before industry and the public were prepared, and cause immeasurable damage (Byington 1979). His decision to move slowly with regulation was partly due to the fact that the CPSC's goal was not imposing regulation, but making the public safer. In his view, the CPSC had tools at its disposal, other than imposing new government regulation. The courts, as always, were supporting litigation and it was litigation that could serve to improve public safety because manufacturers had to defend against liability all the time and liability had long been recognized as a powerful means to motivate industry to produce safer products (Byington 1979).

It is very important to note that the CPSC playground guidelines are voluntary recommendations. Since the CPSC has no enforcement arm capable of ensuring compliance, the guidelines are published with the intent that they will be the authoritative source for improving playground safety (U.S. Consumer Product Safety

Commission 2010). The first CPS *Handbook for Public Playground Safety* (a two-volume pamphlet) was published in 1981.

Between 1972 and 1981, even without a defined set of standards, the CPSC's existence and legal authority to institute product recalls was enough to encourage a litigious outpour concerning playgrounds. Benjamin H. Barton, JD and torts historian, writing in the *Florida Law Review*, remarked on the societal shift of the time. Americans, he asserts, "…began to look at products differently. A uniquely lawyerly pursuit (looking at a product or activity and trying to spin out its worst case scenario [or potential risks]) became something of a national pastime" (Barton 2006). Whether because of this "lawyerly pursuit" or because the rest of the world seemed ready to explode at any minute, the tendency of preparing for, and preventing, the worst case appeared to dominate the mindset.

In 1975 the CPSC announced that the National Recreation and Parks Association (the NRPA, formerly known as the American Playground Association, and the American Parks and Playground Association) would develop "…a proposal that could later be used as the basis of a mandatory Federal regulation" and that while the initial proposed regulations would focus on the most pressing injury factors of "contact with or by fixed or moving parts; falls from equipment; contact with surfaces; entrapment in equipment; structural failure; layout, installation, maintenance and human factors problems" (CPSC 1975) that the intent was to create a comprehensive set of standards. The NRPA formed a 13-member panel of five "consumers", four industry

representatives, three buyer-installer representatives, and an NRPA coordinator. It took six years before all the involved parties agreed on a set of regulations.

When finally published, the handbook shook the industry. Dr. Joe Frost noted that manufacturers, municipalities, and play providers were confused (Frost 1986). Play providers were baffled by the vague guidance concerning the role of supervision, and unclear statements regarding ”the diverse ways in which equipment is used, the varying quality of supervision, and equipment placement and equipment maintenance all play a part in playground injuries” (U.S. Consumer Product Safety Commission 1981a, 2). Also confusing was the advice to beware of the dangers of “sharp edges, screws and bolts” (U.S. Consumer Product Safety Commission 1981a, 7) and the accompanying diagrams for the construction of a test device to determine protrusion acceptability (U.S. Consumer Product Safety Commission 1981b, 8, 14).

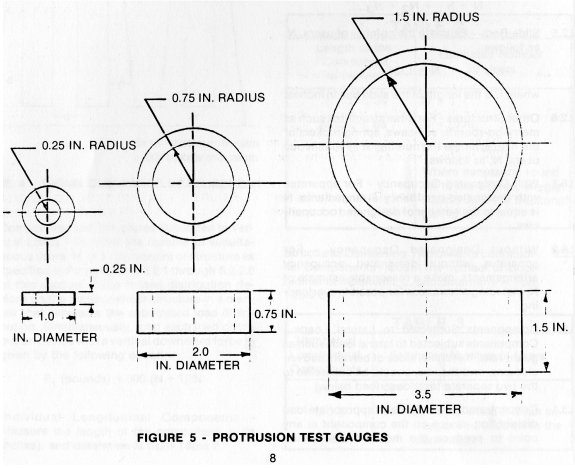

Fig.5 Protrusion testing device instructions. credit: CPSC

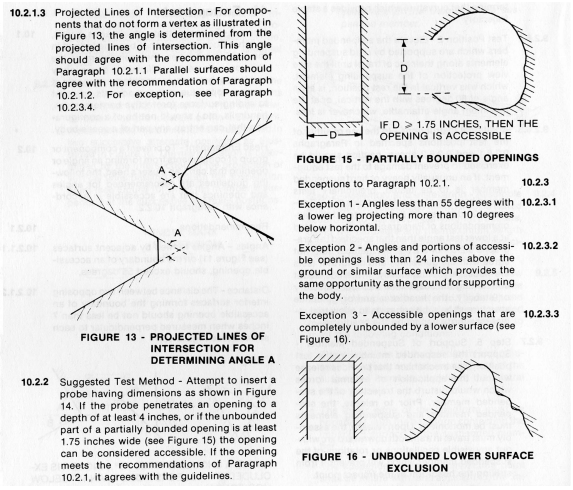

Fig.6 Protrusion profile analysis graphics. credit: CPSC

The first public playground guidelines, published as a CPSC Public Playground Safety Handbook, were issued as recommendations, having no power of law. However, as Frost points out, the CPSC guidelines, based on ASTM standards, have been the "most influential playground safety criteria in lawsuits" (Frost and Sweeney 1995). The science of ASTM testing along with CPSC publication gave the "voluntary" recommendations the force of standards since ASTM and CPSC were commonly recognized as authoritative experts on safety matters. The courts readily accepted the recommendations' scientific standards as valid truth, and both sides of litigation cases used the standards as foundational arguments. With standards created it was easier to establish a foundation for torts, but whether there were more law suits concerning playgrounds is unknown. As Frost and Sweeney point out, many legal actions are settled out of court and have no public record (Frost and Sweeney 1995). What is known is that the number of playground injuries did increase for a time from over 205,000 per year in 1999 (Tinsworth and McDonald 2001) to 245,000 per year in 2001 and then lower to around 215,000 per year subsequently, and then settle at that rate(O'Brien 2009).

If there were more law suits few of those cases ever saw the inside of a courtroom. Whether this was due to out-of-court settlement or insurance settlements, it is difficult to say (Frost and Sweeney 1995). The economic effect, though, is evident in some important design changes. Industry and society put forth the effort, which is not slight, to implement design changes to improve safety. The threats of litigation and product recalls kept the industry generally improving safety.

PRODUCT RECALLS SETTING NATIONAL PLAYGROUND POLICY

The CPSC was in a challenging position as the champion of public safety and also as the agency which industry (the manufacturers and the owner/operators) turned for policy guidance and goals. The CPSC decided to use product recalls as its first arm of enforcement, a course through which to set examples and make policy if industry could not do so itself. As former CPSC Chairman Byington had pointed out, liability was a powerful force for improving product safety, and consumers and industry realized they would be better off paying higher prices for safety than product liability (Byington 1979). The CPSC relied on industry to make sound decisions regarding safety. However, Byington's statement seems rather optimistic, given Frost's 1995 study where playground operators were found unwilling to invest in regular maintenance to keep equipment in a safe condition, even though the initial product had been designed to meet CPSC standards. Though the product recall was a very one-sided tool, acting only upon the manufacturer and not the owner/operator, it served to signal to all involved that what they were doing was being watched.

Product recalls have had a profound effect on playground design. When Congress passed the Consumer Product Safety Protection Act (CPSPA) in 1972, Sections 15 and 17 of the Act empowered the CPSC to regulate defective products and institute product recalls (USCPSC 2012). The recall is a notification, through many communication channels, for consumers to return products that are unsafe or harmful. Product recalls can be initiated by the manufacturer on a voluntary basis, or they can be

directed by the CPSC. The recall can be very expensive to a manufacturer, so it is instituted only after careful consideration of all related facts and effects.

The first product recall's effect on the playground industry was powerful. The first playground equipment product recall in 1983 was for a metal playset designed for toddlers. The CPSC had received reports that children had been hurt while playing on the playset and it notified buyers of the playset (CPSC 1983). Pixieland was out of business at the time of the recall, so no compensation or plan for repair or modification was presented. Owners and users were only notified to stop allowing children to play on them.

A 1985 recall of Miracle Recreation Equipment's "Flying Wheel" was more typical because the company had followed the law, as stated in section 15 of the CPSPA, upon being notified that a death had occurred from product defect. Miracle investigated the accident and notified the CPSC immediately, then formulated a recall plan with the CPSC, notified all owners by registered mail of the defect and proposed a plan to repair and modify the product (CPSC 1985).

Evidence of how seriously the CPSC considered the responsibility of the manufacturer to monitor its product performance and institute recalls when necessary can be seen in a 1986 suit by the CPSC. Perhaps a bit shy from a 1985 product recall, the Miracle Recreation Equipment Company was sued by the CPSC, via action from the Department of Justice, for failure inform the CPSC, as section 15 mandates, of injuries that occurred due to its product the "Bounce-Around Whirl". The CPSC action alleged that the CPSC was made aware of the scope of injuries, "when a college professor

provided documentation of over 30 injuries and lawsuits involving the Bounce-Around-Whirl and the Buckaroo Whirl" (CPSC 1986b). Later that same year, Miracle also instituted a product recall of a series of "Flying Gyms" after a boy was killed (CPSC 1986c).

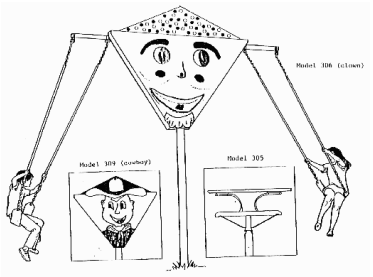

Figure 7 the Bounce Around Whirl and its similar products were removed from playgrounds because of safety issues. credit: CPSC

The economic impact of a product recall can be devastating because the company's name and reputation are attached to its product. However, if properly executed, a product recall can enhance the manufacturer's reputation and build a bond with customers. The power of reputation applies not only to manufacturers but also to types and kinds of apparatus. This is evident from looking at the kinds of changes that playground apparatus design underwent since 1972. A later section will look at design changes.

Through the 1970s until today, the CPSC utilized product recalls, along with its evolving set of standards, to form a reactionary policy that reflects the organization's charter; to protect the public from unreasonable risks of injury or death. This policy focused solely on injury reduction and other aspects of playgrounds, like play value, were neither addressed nor evaluated.

DATA-DRIVEN DECISIONS

For the first ten years of its history the CPSC had methodically navigated the regulatory waters by guiding, not forcing or legislating, parties involved in playgrounds toward a common safety philosophy. The involved parties and views were diverse, but a group of facts allowed them to continue to focus on their goal. Data collection was the most important factor that affected playground design because it formed the assumptions from which all decisions were made and gave advisory recommendations the power of regulatory law.

Data gathering became a powerful two-sided tool. Data provided facts that, on one side, increased the threat of liability, but on the other side, also aided the unified decision of reputable industry companies to make safety a priority. These factors culminated in the first CPSC Public Playground Safety Handbook (vols 1&2) in 1981, being a detailed, engineer-focused 2-pamphlet set (45 pages, together) that attempted to tell playground designers how to engineer safety into playgrounds.

The CPSC uses three data sources to makes its priority list of playground issues; NEISS, the playground equipment recall database, and reports of deaths that are directed to the CPSC (O'Brien 2009). Of these data sources, only the smallest, the investigated deaths database, is robust.

NEISS collects data from a sample of hospital emergency rooms that were selected in 1973, for their relationship to the US population as viable sample centers. The data's veracity and completeness is dependent on the skill of hospital staff to extract accurate information regarding pertinent aspects of the injury and its

circumstances. The CPSC can utilize NEISS to report basic hazard patterns, general equipment related to the injury, the accident location (home, school, daycare, etc.), age, sex, diagnosis (puncture, fracture, dislocation, etc.), and treatment disposition of the victim (O'Brien 2009). Sound CPSC policy decisions cannot be made based on this data, for two main reasons. First, the source reliability is questionable because hospital staff are not trained accident investigators. They may not be able to tell if the patient is lying or not, and they cannot determine whether the equipment mentioned by the patient was actually a causal factor in the injury or determine the condition or existence of the apparatus. David Ball, while explaining the faults in the UK's Health and Safety Executive's playground injury database, noted that injury reports "are of limited value" since they "rely upon reconstruction of the events leading up to the injury and this has often to be done on the basis of partial information" (Ball 2002, 45,46). Second, hospital staffs have no means, through NEISS, to report whether the equipment was in compliance with standards (whether CPSC, local, or state) or what the equipment condition was. These fundamental questions cannot be answered through NEISS and are rarely, if ever, determined before associated data becomes a part of the NEISS database (Gregory Ford 2011).

Proper decisions to rectify hazardous conditions or prevent further accidents cannot be made without complete data. A incident from the Federal Aviation Administration (FAA) shows how the wrong data, or incomplete data, can fail to correct issues when its incompleteness isn't understood. A report from the FAA and US Department of Transportation came to that conclusion in 2000. The report's analysis of

a lack of data – in this case on human error (human factors) issues -- could easily reflect the same condition in the CPSC. In short, the report concluded that the preventative and systemic procedures that the FAA implemented to prevent accidents were not made on complete data, were overly broad or far too narrow, and therefore were not helping to fix a "broken" system. They state that, "most accident databases are not conducive to a traditional human error analysis, making the identification of intervention strategies onerous" (Shappell 2000). "Onerous" interventions had been implemented in the aviation industry based on a poor understanding of the facts, and the facts were hidden because of a lack of data concerning them. In the same vein, CPSC playground safety policies that focus the commission's attention and effort appear to be equally as onerous.

Personal discussions with CPSC personnel confirm that there are known shortfalls of the NEISS system and these data holes do create a dilemma for an agency that reports on playground injuries and is also is responsible for proposing and prioritizing solutions. More specific information regarding accidents is supplemented by the data from the recall database, but this data is product-specific. It is excellent for determining the chain of causal events that led up to specific product recall notices, but it does not help the CPSC understand associations with the majority of non-recall playground injuries.

The most accurate and detailed information available is from the nation's death certificate databases. CPSC subscribes to a national list of death certificates and those that include a specific range of codes that relate to playgrounds and playground

equipment (as well as all the other products the CPSC is responsible for) are received and reviewed by CPSC investigators. Because there are only a few deaths per year related to playgrounds and playground equipment, the CPSC is hobbled with a dearth of general knowledge about playgrounds but has only a few very accurate and detailed reports from which to make wide-ranging decisions. This imbalance of information can skew leadership's perspective, leading to broad policy decisions that are based on a few drastic cases but lack applicability to the whole. Without having an accurate picture of the basic facts concerning the overall status, condition, or function of American playgrounds, and the apparatuses in them, the CPSC makes decisions for an unfortunate few and this is the definition of skewed policy.

There are no statistics on the American playground apparatus populations or conditions. According to Donna Thompson, Ph.D., Executive Director of the National Program for Playground Safety (NPPS), the number of CPSC-compliant playgrounds in the U.S. is unknown. Likewise the total number of playgrounds in the U.S. is generally unknown, and there is no plan to fill this critical, missing data set (Thompson 2014).

There is a problem with the data that forms the assumptions the CPSC and industry work with, publicly. In a complex social environment the data types must be robust and varied, but the data that the CPSC utilizes to make its recommendations is neither robust enough nor broad enough to support the kind of societal change the CPSC Public Playground Safety Handbook propagates. Neither death certificate databases, nor NEISS, nor the recall database can assist decision makers in determining the current state of playgrounds. Early CPSC leadership understood this

dilemma and decided to make wide-ranging decisions based on a very small number of very extreme incidents.

The 1970s were a pivotal time for playgrounds. The advent of the CPSC transferred the informal, though very real, authority for playground approval from an informal organization of concerned and learned citizens, the APA of old and NRPA of today, to a Federal Commission with powers to impose penalties and recommend design standards. The CPSC playground policy's legitimacy comes from the ASTM standards and the threat of litigation. CPSC policy focused the attention of designers on avoiding legal costs and fines by avoiding implementing risk in designs.

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CHAPTER 5

CPSC MAKING NATIONAL PLAYGROUND POLICY

This chapter will point out the powerful impact that CPSC policy has had on playground design. It will point out that the CPSC's methods for improving safety disregard an important aspect of play value: risk. The chapter will analyze important playground injury cases from 1972 until present to show that the CPSC is, in effect, making national playground policy that is concerned strictly with the safety of American playgrounds even though the policy affects design and utility beyond the safety aspect.

Litigation affected playground design in the age of the CPSC particularly via safety standards based on injury avoidance and powered by a fear of costly litigation. In this environment, decisions concerning play and playgrounds are not wholly based on the willing desire to create healthy environments but are foremost risk averse. As protections from courts changed, the actions of play providers became foremost, risk averse.

NEGLECTING OTHER ASPECTS OF PLAYGROUNDS

Though the CPSC has accomplished a huge leap forward in assuring public safety in the most hazardous of situations, it has leapt without taking all of the essential ingredients of a successful playground with it. The CPSC's standards, leading the industry, do not include essential aspects of play or child development, like risk and fun,

and has focused solely on reducing risk. Regarding playground apparatus and playground design, the baby has been thrown out with the bath water.

Logically, the goal of eliminating injuries on playgrounds may cost more in terms of time, money, and efforts than allowing some injuries, and in a paradigm of diminishing returns, absolute safety can be provided only after all risk has been eliminated. Since risk comes in many endless forms, the resources required to keep children completely risk-free would have to be infinite (Ibid.). In an environment of diminishing resources it is essential to know what the "budget" for safety is, because that can affect the ability to execute reasonable care. Many authoritative studies and area experts state that schools and public playgrounds are not responsible to guarantee safety, but only to exercise reasonable care (Zimmerman, Kramer, and Trowbridge 2013, Chermayeff and Richter 2013, Barton 2006, Ball 2002, Byington 1979). Children do not need risk-free playgrounds, but the need for safe play places is well recognized.

Brussoni, et. al., consider precisely the question of how safe children need to be and give some insight into why complete safety is impossible. The child's propensity to seek out risky play is well documented (Ball 2002, Berwick 2006, Bundy et al. 2009, Frost 2007, Hurtwood 1968, Little and Eager 2010, Solomon 2005, Wallach 1992, Health and Safety Executive 2012, Richter 2011), and the tendency to follow impulse, cited by the US Supreme Court in *Railroad Co.* v. *Stout,* 17 Wall. 657, is also well known (Burke 2005, DeGroot 1911). When presenting 38 children, between 48 and 64 months old, with the choice, "74% of participants preferred to play on the more challenging playground equipment. Furthermore, while only 21% to 34% of children had

experience using the higher risk equipment (e.g., flying fox, space net, tubular slide), 70% to 90% expressed the desire to play on this type of equipment" (Brussoni et al. 2012). Brussoni refers to a 2002 US study where "overly strict standards had rendered outdoor play areas unchallenging and uninteresting to children, thus hampering their physical activity. Furthermore, participants noted that some children used equipment in unsafe ways to maintain challenge" (Brussoni et al. 2012). When considering how much safety children need to be provided, Brussoni echos Julian Richter's sentiments; "children learn risk management strategies for themselves and [from] their peers as a result of risky play experiences. Observational studies of children at play found they exposed themselves to risk but displayed clear strategies for mitigating harm" (Brussoni et al. 2012). Children become, through experience, aware of risks and potential dangers, and will adjust their behavior and actions to reduce the risk to their own personal comfort levels. Children do not need to be shielded from all risks, but rather protected from dangers. The difference is that if they are able to see, understand, and react to the situations then risk is involved, and will be dealt with, but dangers exist when the risks are not evident and inappropriate actions are taken that are out of context with the risk level in the situation.

Finally, it is useful for children to encounter risk or they run the real possibility of becoming adults that are easily paralyzed by fear, as Brussoni suggests that, "… if children were not provided with sufficient risky play opportunities, they will not experience their ability to cope with fear-inducing situations. Furthermore, they will maintain their fear, which may translate into anxiety disorders" (Brussoni et al. 2012).

The information from experts in the field suggests that risk-free play is not only impossible but harmful. Reducing risk on the playground could decrease safety over the life of the child.

LITIGATION AND PLAYGROUND INJURIES 1972 - PRESENT

This period's legal activity reflected an expectation of injury-free playscapes and the responsibility for safety shifted dramatically and in scale to put local municipalities and playground operators at risk. With a Federal agency overseeing playground safety standards the expectation was that playgrounds would become safer, just as American cars had (National Highway Traffic Safety Administration 2011). Even though injury rates remained steady, the cost of injury litigation was rising and insurance became prohibitively more expensive. Free from national policy and faced with rising costs, parents and playground operators were in a no-win situation. Interactions among new legal frameworks shifted the focus from one that valued children's development to one that used children as a measure of injury avoidance.

Prior to the CPSC Public Playground Safety Handbook being published in 1981, though, the courts varied state-by-state in tort rulings, generally reflecting the character of the state's laws regarding municipal sovereignty (Frost and Sweeney 1995, Zimmerman, Kramer, and Trowbridge 2013). Around 1981 municipal sovereignty began to be less fail-safe due to some precedent-setting legislation, and the larger municipalities looked to extend their insurance coverage to include playground injury (Blodgett 1986).

While municipalities were looking for insurance because of eroding municipal sovereignty, a developing trend among insurance companies, abandoning municipalities as bad risks, affected municipalities by creating an economic burden for traditionally cash-poor municipalities (Blodgett 1986). Accidents were not reducing, medical costs were climbing, what changed, again, was the target of the suits.

Not only were municipalities being targeted in liability and negligence cases, but the teachers and caregivers were open to torts. In1978 a St. Louis, MO appellant court found a teacher not negligent when a 6-year old boy tied a rope to the top of the jungle gym during recess and, holding the free end of the rope, jumped from the top of the jungle gym, fell and broke his arm. The defendant had been monitoring the playground and was looking in another direction when the boy climbed, jumped, and then fell (Clark v Furch 1978). What is unusual about this case is that the defendant, the teacher supervising the playground, is an individual. Prior cases of playground negligence, where adequate supervision was in question, had been against school boards or municipal entities. The court ruled in this case that the teacher, as an agent of the school board, had practiced reasonable care. The fact that Missouri and some other states had been reluctant to chink the armor of municipal sovereignty forced the plaintiffs to use a direct strategy seeking damages, but courts seldom found for plaintiffs in these cases, unless negligence was blatant and strictly personal. Even though there seemed to be some protection in a wide interpretation of “proper care”, the fact that government agencies and individuals were exposed to torts forced them to spend funds

to seek insurance and also critically examine their operations for anything that might further expose them to liability.

Other strategies to recover damages were tried, especially where the state legislatures had provided a few very specific exemptions to municipal sovereignty, e.g., New York and California, and allowed the school districts to secure insurance against heavy claims.

In *Beckus v Chicago Board of Education, 78 Ill. App. 3d 558 (1979)*, Beckus, injured on a playground slide, alleged negligence on part of the Board and claimed $50,000 in damages, but the court held that immunity from torts applied since there was no wanton or gross negligence by the board. Beckus asserted that the $1M dollar insurance policy the Board had purchased exempted it from tort immunity, but the court disagreed, noting that insurance was only applicable in cases where damages were over $1M D dollars (Beckus v Chicago 1979). This case points out two trends that were happening in the nation. First, that governments were purchasing insurance against tort claims, and second, that the premium for the insurance was very large.

These trends show that there are cases where negligence can be proven and damages can be awarded as in, *Pritchette v Manistique Public Schools, 403 Mich. 268, 143 (1978)*. In this case, a boy slid down a school slide and got a 10-inch splinter in his leg that required surgery to remove. The court allowed an exemption of municipal Immunity because the slide's maintenance had been neglected. Several social issues arose from allowing torts to penetrate the veil of sovereign immunity in an increasing number of cases, with unforeseen effects in the financial, insurance, and educational

realms. As dissenting Justice Ryan remarked in *Pritchette v Manistique*, "…we do not know where [exemption form sovereign immunity] will lead. It is not difficult to envision future legal (and social) engineering problems as a result of this proposed statutory remodeling" (Pritchette v. Manistique 1978). Regarding insurance, Justice Ryan continued,

> …there is a myth that insurance can be obtained for any kind of liability no matter how costly. However, this has ceased to be true, if it ever was. We do not know what costs or possible reserves or added taxes will be necessary even now to cover the results of our recent opinions. We do not know the impact upon small schools and communities or counties. We do not know the impact upon public parks and recreation areas and centers, tennis courts, swimming pools, hospitals and a mind-expanding list of other resources, some more necessary than others (Pritchette v. Manistique 1978).

Justice Ryan was quite correct, no one knew the consequences. Even though powerful decisions that would affect the core of the nation were being made with very little knowledge of facts there was no move to discuss making it an item of national policy. By implementing a safety-first policy through the threat of legal action, the CPSC instituted a national playground policy without the advantage of a national debate.

There were few trial cases that affected the playground industry or playground form, wholesale. Litigation, as Byington had said, was compensating victims where necessary, and municipalities, the primary operators of playgrounds, noted that as coffers ran dry and immunity was eroded relief would have to be sought. Municipalities sought relief from the torts not by changing their operations to maintain playgrounds as recommended by experts and engineers but by seeking insurance against claims that

they knew would come. Municipalities and playground providers become so unable to buy insurance that they become even more risk averse, changing the nature of their services (Blodgett 1986). Recent cases point out many operating entities use risk aversion to deal with playgrounds, despite its cost to society.

In 1999 a woman was injured on a swing set in a forest preserve campground outside of Rockford, Illinois, and a jury awarded her $248,000 in damages. The woman's injury was caused by an open "S" hook that allowed the swing to fall from its securing bar and caused her to fall. The jury was convinced of the operating campground's "willful and wanton neglect" and assigned complete liability to the campground (Chambers 2010, 10A). The woman's lawyers, according to the current chairman of the National Playground Safety Institute, Tom Kalousek, convinced the jury that the campground, where Kalousek had worked that year, had failed to adhere to CPSC playground safety recommendations (Ibid.). The campground removed all 26 swing sets from the 10,000 acre preserve's campgrounds that year, and only under close supervision by risk assessment experts were nine playgrounds installed in 2009 (Ibid.).

It appears that the impetus to sue for damages is reflex-like among Americans who sue for personal compensation with little regard for the cost that society incurs. Kalousek was involved in another incident involving swing sets in 2009. A Cabell County father had sued the Cabell County Board of Education twice, separately, for each of his daughters after they fell from swing sets at school. The suits were settled

for $23,000 because the family attorney argued that the layer of resilient ground cover around the swings was not adequate (Chambers 2010).

The double edge of standards was evident again, in *Newman v Oceanside Union Free School District, 23 A.D.3d 631(2005).* A child was injured while playing on a school playground. Subsequently, his father sued for damages. The suit alleged defective equipment and lack of supervision as the causes. Both issues are items that the CPSC Public Playground Safety Handbook mentions, though qualifications for supervision are suggested but recommendations about supervision density are not defined. In testimony to the powerful effect that the data and standards have on the public as well as playground operators, the CPSC Public Playground Safety Handbook standards played the pivotal role in the case. The court found that, “the accident occurred in such a manner that it could not reasonably have been prevented by closer monitoring, thereby negating the alleged lack of supervision as the proximate cause of the infant plaintiff's injuries,” and as it was decided, “defendant [school district] submitted expert evidence demonstrating, prima facie, that the design of the playground equipment from which the infant plaintiff fell was appropriate for her age group, complied with relevant safety guidelines, and was not defective” (Newman v Oceanside Free School 2005). The case was dismissed.

Likewise, CPSC standards played a vital part in resolving *Quinn v. Babylon School District, 2008*, where the plaintiff contended that the wood chip bed beneath the playground’s trapeze rings was not deep enough and this caused the injury when her son fell while using the rings. The school district’s maintenance personnel could not

define the depth of wood chips required by standard, nor could they explain how deep the wood chips were on the day in question and the request, by the school board for summary dismissal was refused. The case went forward to trial (Quinn v. Babylon 2008).

Another case, involving the death of a child, ended when the manufacturer settled out of court after 3 years of litigation. In 2010 a 9-year old girl fell from an Oklahoma elementary school's new X-Wave, was struck in the head, and died shortly thereafter (Stogsdill 2013). Her family demanded that the product be removed from the market, but only 5 other schools in Oklahoma decided to remove the apparatus from their playgrounds. Neither the manufacturer nor the CPSC issued either a warning or a recall. The X-wave is composed of three steel beams fastened together flexibly, so they rock upon their own central pivots. The X-wave was capable of holding 15 children. The manufacturer offers an X-wave 2, which is designed so that children can sit and have hand-holds while riding (Ibid.).

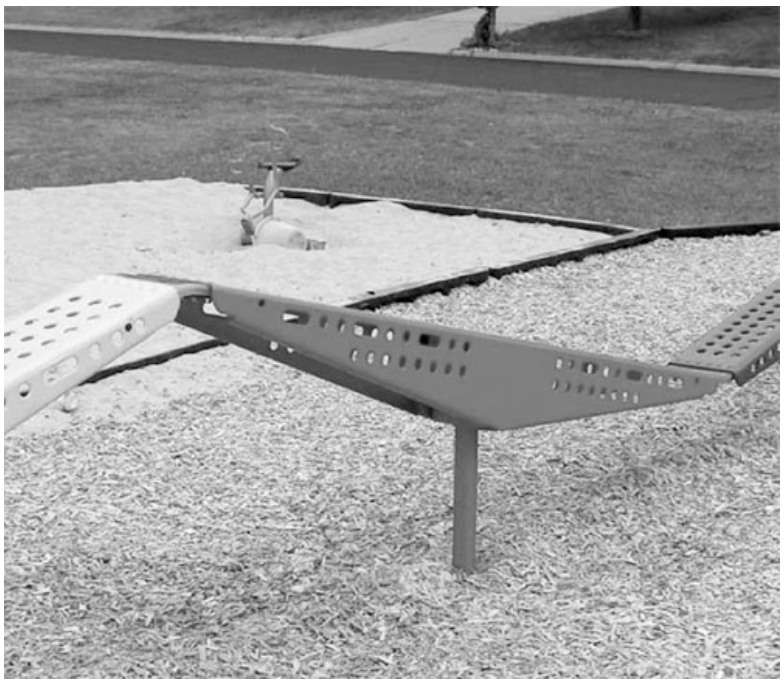


Figure 8 X-wave apparatus credit: landscapeonline.com

While sovereign immunity may not be mentioned specifically in the next case, it is clear that the court is addressing the same issue of allowing a government to do what it needs to while practicing “required degree of care”. In 2007 a 4-year old girl was injured at a city park in Billerica, MA where she was playing in a child’s stage area located next to a baseball diamond (Redmond 2007). While on “the stage area, which is unprotected by netting” she was struck by a baseball and has brain damage (Ibid.). The family argued that the city was negligent in maintaining public property while the city argued that the family was merely claiming the city had failed to prevent harm. Appeals Court Judge Joseph Trainor wrote:

the town could have prevented the injury... It could have extended the netting, posted warning signs or erected fencing… But those are "examples" of how the town might have prevented harm…There is potentially an infinite list of possible preventive

actions that …could have [been] taken…It is almost impossible to imagine an injury that could not have been prevented, so the failure to undertake such actions cannot be the basis of defeating the town's immunity (Ibid.).

This case defends the root of sovereign immunity, pointing out that municipalities are only required to provide a reasonable degree of care.

Standards are powerful and important since they can be used to decide liability or if a case even exists, and that can change the environment legally, socially, morally, and economically. Standards are important for making sure that industry is producing products that meet certain levels of design criteria. Standards can help the users also to understand the intended use and expected outcome of the products. It is very important, then that all of the interested parties have equally valued inputs into what aspects standards get developed for, and the consequences that are the probable outcome.

Since there is only one legal standard for playgrounds, and that standard is based on injury reduction, other useful qualities of playgrounds, such as their simple existence, have been sacrificed in full light of he law. There is an overall functional imbalance in the law that is shaping playgrounds' functions in undesirable ways, such as them being designed for the lowest common denominator.

CPSC AFFECTING PLAYGROUND FORM

The CPSC's playground standards were meant to affected design through influencing litigation. Direct CPSC actions such as product recalls and including design

aspects in the *Public Playground Safety Handbook* also affected design outcomes by changing perceptions about product safety. Product recalls and the inclusion of guard rails and barriers were profoundly influential on design.

The power of the product recall was evident when the whirling-arm style of playground apparatus, many similar to that displayed in Fig. 9, disappeared practically overnight from American playgrounds in the late 1980s. The major equipment manufacturer had been aware of several injuries resulting from catastrophic equipment failures of several models of rotating arm apparatus, but had failed to inform the CPSC of these injuries, as per Federal Guidelines (CPSC 1986a). The CPSC started legal action, via the US Department of Justice, and though the manufacturer settled with the CPSC and offered to make free repairs, the damage to the company and product reputation had been complete and owners chose to remove the apparatus, instead. Inadvertently, the product recall removed an innovative design, not just a single, defective product.

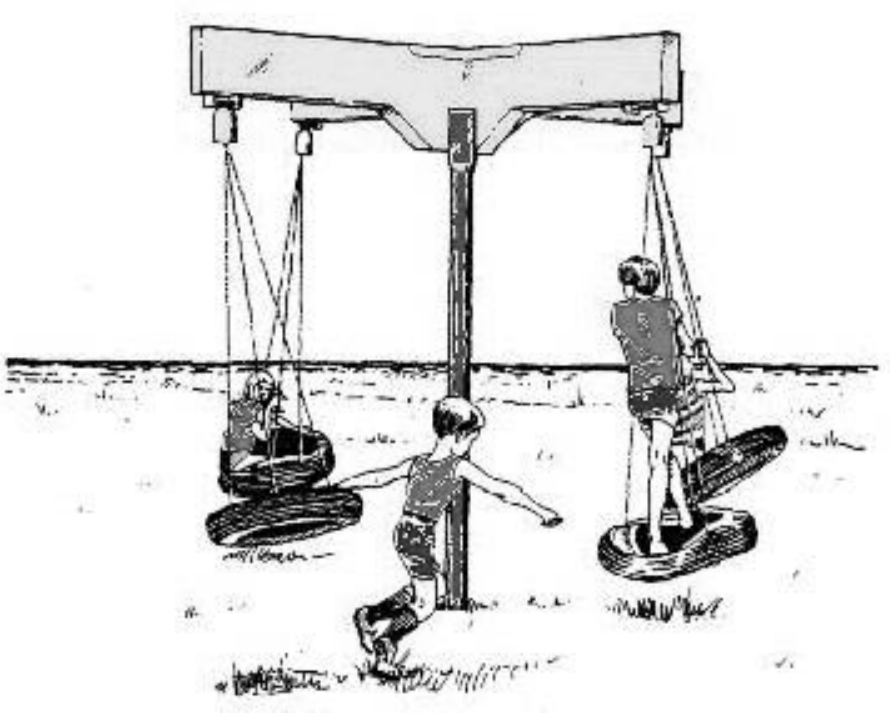


Figure 9 Flying Wheels Swing, an example of the rotating arm style of apparatus. credit: Miracle Equipment Co.

Another design change that affected form and function drastically was the adoption of the combined tower and platform arrangement. This happened as a means to address fall safety and as a way for industry to reduce costs through standardization. Every year since its operation in 1973, NEISS has reported that a vast majority of playground injuries were the result of falls and industry sought to correct this by changing the manner in which children accessed apparatus (O'Brien 2009). In addition, CPSC recommendations in 1982 for “softer” materials encouraged wood construction and both were combined in the multi-station, combined tower and platform apparatus which simplified access and restricted child movement (U.S. Consumer Product Safety Commission 1981a, 7). This configuration placed apparatus at the sides of an elevated platform on a tower. By climbing one kind of apparatus attached to the tower, the child

could access the platform, and from the platform access other apparatus or another tower. Through eliminating the many, separated apparatus, as proposed by Jay Beckwith, the need for many different ladders and steps was eliminated (Shell 1994). Also, this economized the area that would have to be covered in resilient play surfacing since the child was gaining height in only one location to access various ways to descend. The tower configuration provided some structural softening, contributed to social gatherings, and was structurally versatile, but its wide adoption affected play options.

Figure 10 1980s wood tower with slide and ladder, credit: New York Pub Lib

Protection from falls was integrated into playground apparatus, mostly in conjunction with tower configurations, and this greatly affected form. The typical apparatus of the 1970s were separated apparatus that were accessed via individual rail ladders or open steps and the higher ladders and steps often had a single handrail to allow children some comfort at those heights.

Figure 11 19702s Slide with old style rails, credit: Scott from flickr

Even with rails, accidental falls happened so complete rails, extending the entire length of the ladder or steps were added, but this became an attractive apparatus for children to hang on or spin on, and did not seem to prevent falls. Improved safety rails and barriers, composed of vertical bars, spaced evenly from the runner, nearest the ground, to the hand rail and close together enough to prevent head entrapment and accidental hangings, enclosed the access paths and surrounded the exit apparatus

(U.S. Consumer Product Safety Commission 2010, 20, 24). Enclosed platform steps replaced ladder rungs, eliminating the opportunity for small bodies to slip through them (Ibid. 51-53).

Figure 12 closed steps, rail enclosure, and rounded form of tower playset, credit: dunright playgrounds.com, on pinterest

The tower configuration allowed the child's pathway on the apparatus to be enclosed and restricted through railings and barriers. This channeling configuration

reduced the probability that a child would fall, and also restricted the areas where a fall was possible, such as transitions from a platform to a fireman's pole.

Channeling traffic had serious effects on both play value and fall protection. Limiting the fall possibility to selected areas changed the ground treatment. Designers could concentrate on specific areas of the ground where falls would be considered possible and supply the appropriate resilient material for the predicted height of fall. Transition areas were considered "fall zones". These "fall zones" were originally designated to allow designers and owners to reduce the expense and maintenance of deeper, softer material that could cushion higher falls, to focused areas (U.S. Consumer Product Safety Commission 2010, 40).

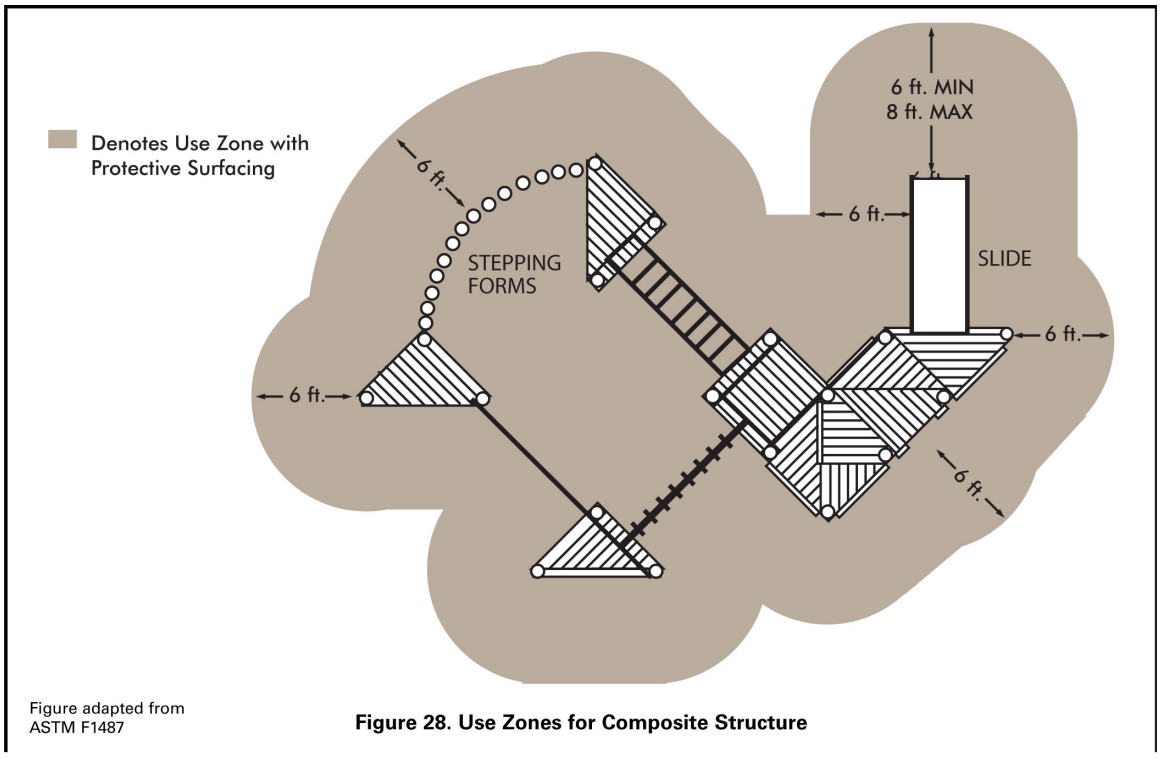


Figure adapted from ASTM F1487

Figure 28. Use Zones for Composite Structure

Figure 13 fall areas and clear zones, credit: CPSC Pub Plgrd Saf Hdbk p 44

Also addressing the concerns of falls, resilient surfacing of many types, loose and unitary, natural and artificial, or even maintenance-free began to be developed. This changed the nature of the play surface. In 1981, the CPSC recommended that concrete and asphalt were not acceptable and traditional concrete, asphalt, turf, packed gravel, dirt, and "untended" surfaces were supposed to be replaced by one of these several kinds of surfacing. Volume 2 of the first CPSC Public Playground Safety Handbook noted that, "hard surfaces...may not require an excessive amount of maintenance or repair, they do not provide injury protection from accidental fall impacts and are therefore not recommended for use under playground equipment" (U.S. Consumer Product Safety Commission 1981b, 22). Resilient surfacing such as deep sand, wood bark chips, shredded rubber, and pea gravel each had specific characteristics that lent its use to certain areas to cushion falls from various heights.

The final aspect that addressed fall height safety was the issue of height, itself. CPSC recommendations for heights of apparatus types were reduced to bare minimums (U.S. Consumer Product Safety Commission 2010, 8). Freestanding apparatus like balancing bars or beams that could not be enclosed were brought much closer to the ground and separated from other equipment by great distances so that any fall would be to the resilient surface, directly, and not to another piece of hard apparatus (U.S. Consumer Product Safety Commission 2010, Peterson 1992).

Additionally, material technology, especially plastics, allowed forms that met smoothly, without sharp angles or edges. Most noticeably, certain seams or joints that

used to cause splinters or pinches and cuts and amputations were designed-out through the use of molded plastics that created a unified look.

Figure 14 Rounded form of unified design, credit: rrcity.com

What started to take shape was a series of steps and connected platforms, leading to smoothly-joined apparatus, enclosed by tightly spaced rails to prevent falls. The area where children played became a colorful collection of inter-connected channels, designed to protect users from possible harm.

After 1972, American playground designs show significant changes that reduced play value and were influenced by the fear of litigation. First, the tower and platform

configuration took hold in the mid-1980s. Second, fall height continued to be addresses via three means: restricting child movement via impenetrable guardrails and closing up steps (1991), introducing maintenance free resilient ground covers and matting (1991), and reducing overall altitude (1981). Overall, the visual form changed dramatically, becoming far more rounded and unified, through incorporation of high-strength plastics.

GUARDRAILS AND TOWERS

The CPSC standards directly affect playground apparatus design by addressing safety via engineering. One possible outcome, according to Dr. Tom Jambor, Playground Specialist, and Associate Scientist with the Injury Control Research Center at The University of Alabama at Birmingham says that "when safety restrictions increase, there is a corresponding decline in the play value of a site" (Solomon 2005, 43).

Through the evolution of CPSC standards, from 1981 to present, nearly all apparatuses were fitted with guards and rails to effectively funnel children through a series of approved physical motions. For instance, when approaching the top of a slide, one can not belly slide, stand, or go down sideways because the hood and channeling bars eliminated those choices (U.S. Consumer Product Safety Commission 2010, 32-33). Likewise, any device or apparatus can only be accomplished in a single fashion because of its specific design, in accordance with standards.

CPSC standards have effectively created design standards that resemble another traffic funneling device (figure 15).

Figure 15 Cattle Chute designed for restricting cattle, credit:ranchcity.com

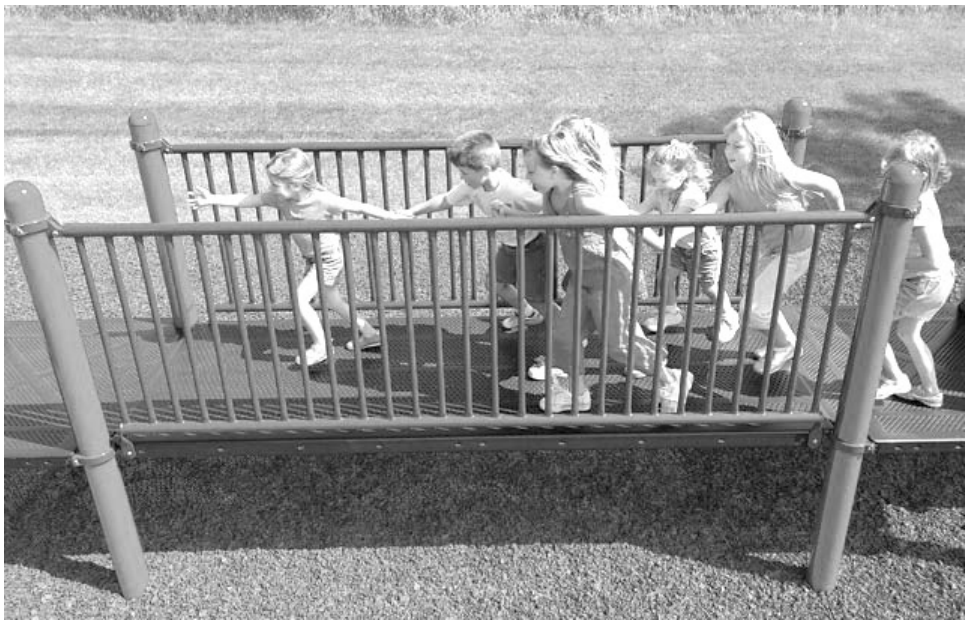


Figure 16 Children in fall-protected chutes, credit:playlsi.com

Dr. Joe Frost and Helle Nebelong, Danish Landscape Architect and designer of many playgrounds, separately suggest that the physical and mental exercises of recognizing a challenge, deciding on a goal, formulating a plan, willing the body to obey the mind, and adjusting with mind and body as one during the execution are all lost when design is uniform and deliberately risk-free (Freeplay Network 2010, Frost 2007).

Standardization has consequences. The monkey bars are all equally spaced, wherever one goes in the U.S., most slides are the same length and slope, the steps to the apparatus are all the same distance, even in the same materials and likely the same color. Nebelong has developed playgrounds and policy for Copenhagen, Denmark and designed natural play spaces for over 22 years. She says that, "standardization is dangerous because play becomes simplified and the child does not have to worry about his movements" (Freeplay Network 2010). Limiting the course of activity, as the CPSC standards suggest, reduces play value.

Tower forms that are attached to each other by chutes detract from play value by limiting the choice of paths that children have to reach their destinations. However, the addition of elevated chutes does create an opportunity for activity beneath the chutes, if the chutes and ramps are high enough to accommodate children beneath. A search through different playground equipment company offerings will point out that modern tower forms also have the tendency to be similar, from place to place. Each playground is varied very little in its content and form, and play becomes very rote, losing its inherent value.

As Dr. Frances Wallach points out, children seek challenges and remain engaged when there is the promise of a next level of difficulty (Wallach 1992, 53). Even when traveling, then, children are quickly frustrated to find the same towers, the same apparatus, at many different locations. From an engineering perspective, the tower and platform paradigm is very tidy and easy to mass-produce and standardize. This standardization is driven by CPSC standards and also makes it easy for manufacturers

to make compliant, modular apparatus. The modularity is also very suitable for creating the unitary, flowing, edgeless forms that CPSC standards require.

The unitary form is necessary to comply with CPSC standards that eliminate crushing, binding, impaling, or entrapments (U.S. Consumer Product Safety Commission 2010, 14-17). The unitary, apparently seamless designs also eliminate the hazards that are responsible for the most deaths on playgrounds, which are by hangings and strangulations (O'Brien 2009, 14). When pieces are attached in a unified way, there are no open seams, spaces, or gaps that can cause injury as children move around or on them. Most unitary apparatus have very limited play value, as noted by Frost, Hunt, and Wallach (Frost 2007, Hunt 1918, Wallach 1992). The American approach to eliminating entrapment hazards has focused on creating unitary designs that can be mass-produced, are unmovable, and which also lose their interest quickly because many of the same forms are repeated in many playgrounds. Some unitary forms, European designed or patented, take another approach to eliminating these hazards. These methods are more expensive and examples are rare in the US (The Beauvoir School Playground, and Pier 6 Playground, for example) but far more common in Europe (see Chapter 7).

The play value of height cannot be underestimated. Children are drawn to height because of the potential risk and the easily identifiable risk involved (Ball, Gill, and Spiegal 2012, 112). Height is something that children can choose to conquer. Height, however, has been eschewed by CPSC standards. Though some tower structures may be 12 or even 20 feet high, the children are limited to the height they can obtain by the

platforms provided. This protected height is not over 10 feet and often not more than 3 feet, so the illusion of height can disappoint the more intrepid children. The obtainable heights are determined by the depth of ASTM-approved resilient surfacing that can prevent a life-threatening head injury from fall height (U.S. Consumer Product Safety Commission 2010, 9). Some very old playgrounds feature unprotected falls of 16 feet, but even in Europe's most daring playgrounds the unprotected height is rarely over 6 feet but play value is retained by using more natural, seemingly random designs (Ball, Gill, and Spiegal 2012, 74). The lack of obtainable height, coupled with unitary design, contributes heavily to the decreasing play value of American playgrounds.

Likewise, the limited style and shapes limit playground attendance. The social importance, the emotional attachment that one could form with a playground, has an important affect on use and attendance. Märit Jansson and Bengt Persson, researchers with the Department of Landscape Management, Design and Construction, Swedish University of Agricultural Sciences in Alnarp Sweden noted that, "the social function and the importance of playgrounds appeared to depend on… site-specific physical and social conditions" (Jansson and Persson 2010, 33). They noted differences in attendance between standard-compliant playgrounds and those which had more variation (Jansson and Persson 2010). The differences appeared to affect use and should be given greater consideration in playground planning and management. Adherence to planning standards has resulted in the construction of many playgrounds with little variation between units but particular, local qualities are important in attracting users. Communities become less engaged when the form reflects

“interchangeable equipment and standardized actions” because there is no context in which to form emotional connections (Solomon 2005, 91).

The CPSC standards limited risky, attractive design by closing the children in protected pathways and creating a cookie cutter style. The CPSC policies, when applied on an industrial scale, reduce the play value, and limit the popularity as well as the utility of playgrounds, leading to an overall decline in use.

Though it is almost certain that these changes were not meant to decrease play’s utility the changes did affect the value of play that could be achieved. Any solutions that seek to improve the state of American playgrounds would need to first consider the effect that the American insurance industry has had on the American propensity toward risk aversion.

INSURANCE FAILURES AND THE RISING CULT OF RISK AVERSION

Perhaps the most obvious consideration for a playground operator is cost. The costs of land and building the structure don’t stop there. Maintenance is required, and insurance, also. The CPSC uses only the ASTM standards to measure playground suitability strictly from a point of view of injury elimination. There are other aspects of playground design that are functionally ignored, since, as Byington pointed out, none of the other aspects have the immediate and profound effects that a costly law suit can have (Byington 1979). A major aspect of playground design deserves particular mention since it is most frequently mentioned when the subject of playgrounds is mentioned, and that is insurance.

When municipalities became subject to torts in the 1970s, they also found themselves uninsurable and vulnerable to huge losses because of a concurrent, and mostly unrelated, insurance industry failure. Nancy Blodgett's excellent article in the American Bar Association's *ABA Journal* explains that because of the 1980s insurance industry failure, playground operators were encouraged to eliminate "risk" since the law found it to be synonymous with "danger" and playground operators found insurance far too expensive to obtain (Blodgett 1986, 48,49). Municipalities seeking insurance found the premiums skyrocket and the coverage plummet. The insurance industry panic effectively forced municipalities to closely examine their services, not from the view of obligations to citizens that create authority to govern, but from the perspective of their economic survival as an entity. Cities trimmed services and eliminated any elements that may be considered risky, like playgrounds (Ibid.). Municipalities that could not buy insurance had to be self-insured, using money from cash funds to cover potential losses, and they became every bit as averse to risk as the insurance companies that had abandoned them.

When risk and danger become synonymous in the eyes of the law industry designers had to find less risky designs. Though the tort expansion into public government provided needed penalties for some irresponsible playground practitioners it exacerbated the fear of lawsuits and greatly increased their effect. As long as risk is not considered an integral and essential playground aspect it will be very difficult and extremely expensive to create proper play environments that American children need.

The situation imposed on municipalities was a classic no-win situation; claims against them increased dramatically, and the costs forced cutbacks in programs that could protect them, like playground maintenance (Blodgett 1986) . As Dr. Joseph Frost points out, “Failure to maintain and poor maintenance were factors in almost all of the injuries/lawsuits reported in this study, influencing large judgments or settlements in several cases” (Frost and Sweeney 1995, 12). With a propensity for self-protection, playground design took on a very uniform appearance beginning in the late 1980s.

The playground operator’s goal was to install apparatus that would not expose them to lawsuits; so “successful” designs were replicated all over the U.S. Dr. Joe Frost explains that, “playgrounds took on an ever more standardized appearance, ostensibly to comply with safety standards. Some people began criticizing playgrounds for their cookie-cutter appearance” (American Journal of Play 2008, 147). The playground equipment was being installed to support children’s play, and although it supported gross muscle and motor skills development it lacked the support for the other aspects of play like imaginative free play and social skills building. Attention and purpose had shifted from the needs of children to the financial safety of the playground operators.

Playground apparatus evolved to “provide safety”, rather than challenge, risk, and suitable play. Less attention was given to innovative form, and more to meeting the changing standards. Only a small fraction of children who have played on playgrounds were ever injured (O'Brien 2009), so the CPSC standards impose changes in playground form and utility that suit the few who had been injured. In addition, play was essentially being forced to accommodate the very small minority of children

because the cost of insurance and litigation mounted, so including risk and challenge left playground operators vulnerable to liability, The CPSC had effectively made national playground policy and dictated compliant designs that accommodated the lowest common denominator.

CHAPTER 6

DESIGN CHANGES OVER TIME

Chapter 6 examines the effects of changing perception of risk in the legal system. Playground apparatus designs were compared chronologically, examining the change in form that produced a reduction of risk as time progressed.

The most common forms of playground apparatus were compared for variations within the type over time. Swings, slides, merry-go-rounds, climbers, and teeter-totters/see-saws were compared. Some extinct apparatuses, not in use in the modern age, were also reviewed within limited time frames. Variations of form within certain apparatus types can occur, so this evaluation is not meant to be absolute, but rather to point out that a tendency to design with a distinct lack of risk can be discerned by examining form. The effects on play value are considered.

The form of playground apparatus from 1900s until present will be compared using photo comparisons. As Frost and Jansson's research has shown, forms directly effect the play environment by drawing the crowds of children and form also creates play value, ensuring active and healthy playtime (Frost 2006, 4-7, Jansson 2010, 75-79, Jansson and Persson 2010, 39).

The CPSC playground standards attempt to increase safety by eliminating risks through litigation. Historically, even before the CPSC standards were accepted, some degree of risk in play has usually been avoided, and this is also evident in the historical design trends.

Table 1, Play Aspect History Chart, shows a relationship between evolving design aspects (height, material, surfacing, etc.) and social factors (public interest in playgrounds, court findings, etc.). The cases were selected from the cases considered for the thesis because their decisions showed the legal trend of the time in their outcomes.

The relationship between the court's capacity to support sovereign immunity and the impetus to change playground design is an inverse relationship. More changes to playground design, of a nature that reflects risk aversion, happened when the courts began to hear torts against governments. This was a gradual occurrence that happened state-by-state and is still occurring to varying degrees, so the effects are difficult to pinpoint in time. Another relationship exists between the rate of playground design change and the legal concept of strict liability. After 1960, strict liability made industry participants more aware of the potential harm that their apparatuses could be involved in. The rate of playground design changes and accompanying social changes accelerated after strict liability became a part of American legal practice. A final relationship exists between perceived risk and the CPSC's relationship with playgrounds. The CPSC's voluntary standards paved the way for citizen torts to reach all levels of government and industry and encouraged the tendency toward risk aversion.

Table 1. Play Aspect History Chart

YEAR and CASE	DESIGN ASPECT CONSIDERED	SOCIAL OUTCOME
1873 - Railroad v Stout Established that reasonable care must be taken to protect children	Owners of attractive / hazardous areas must guard them against children's curiosity	Sets the standard of treatment for children where play is concerned
1922 - Anderson v Board Both the City and the Board of Ed. are immune from liability	Hard-seated swing kills a boy, but it is an unfortunate incident with no one at fault	Sovereign immunity applies to all govt. levels - Citizens are responsible for themselves
1946 - May v Board Boy was injured by cinders in playground surfacing	"Safe" playground surfacing recommended by APA is not installed widely due to costs	Sovereign Immunity is upheld
1946 - Gleason v Pittsburgh Boy falls from slide and is injured on concrete pad	A tall slide above a concrete pad was not considered inherently dangerous	The child fell, as children do, and the surface type would have little difference
1948 - Styer v Reading Child's eye is injured during supervised play at a playground	City undertakes supervision role, by providing a play leader & is held to higher care	Dissenting justices warns; this precedent may make "marbles" imporper play equipment
1957 - Cooper v Pittsburgh Child injured on swings by twirling the ropes up and spinning down	Children will sometimes disobey the posted "rules" of the playground	Municipality is not an ensurer of child safety on its playgrounds
1961 - McBurnette v Playgrnd Co Child's finger amputated on "Skyrider" swing	Joints and pinch points can cause injury	Strict liability opens manufacturers to torts for designs that may cause harm
1972 - CPSC formed by Federal Act - Public wants assurances of safety from industry		
1978 - Clark v Furch Child jumps from top of jungle gym and city employee is sued	The quality and role of supervision is questioned	Public seeks to have more targets for torts, and govt's must seek insurance vs claims
1979 - Bekus v Chicago Claims Board cannot have immunity since it purchased insurance	Equipment maintenance is called into question	Public demands that equipment be maintained in safe condition
1978 - Pritchette v Manistique Boy injured by 10 inch splinter on a city owned slide	Equipment maintenance is called into question	Failure to properly maintain equipment is grounds to suspend sovereign immunity
1999 - Rockford, IL swingsets Woman falls in swing when open "S" hook allows swing to fall	All swingsets in the park were removed	Injury-free play and recreation are a public expectation
2007 - Billerica, MA Young girl hit in head with baseball playing on a stage near a ball field	Family asserts that the ball barier should have been longer	Court replies that any injury is preventable, but says that is no basis for defeating sovereign immunity
2008 - Quinn v Babylon Child falls from trapeze rings and breaks arm	Mulch bedding depth is not in compliance with CPSC guidelines	CPSC standards set playground suiability - child has no part in own protection

This makes one thing very clear, that playground design was not changed dramatically by landmark cases that forced the removal of certain styles or designs of apparatus, rather that the societal change that supports risk exclusion in playgrounds happened over time.

Dr. Joe L. Frost, Professor in Charge of the Play and Playgrounds Research Project at the University of Texas, Austin, summarizes the overall change in playgrounds, saying that today's playgrounds are not as challenging as the previous generations of playgrounds (Kahn 2005, D-05). Adults are responsible for caring for children, but this does not mean only providing safety. It also means ensuring that they have the opportunity to develop into proper adults, which involves letting them explore their world, make mistakes, and occasionally get hurt. Without the opportunity to take chances in risky play the children do not gain an appreciation for concepts like: risk, opportunity, their own capabilities, or the dangers that exist in the world. Dr. Frost has studied play and child development for over 40 years, and is concerned about the lack of risky play in safety-centered playgrounds because, "Play is one of children's chief vehicles for development," Dr. Frost said. "Right now it looks like we're developing a nation of wimps" (Ibid.).

The CPSC playground policy affects playground design and utility beyond the safety aspect by affecting form, which affects the other aspects of play. In *American Playgrounds: Revitalizing Community Space,* Susan Solomon points out that the safe playground environment, according to Arlene Brett, Robin C. Moore, and Eugene F. Provenzo Jr in *The Complete Playground Book*, "lacks most of the important elements

necessary for meaningful play. These include variety, complexity, challenge, risk, flexibility, and adaptability" (Solomon 2005, 84) . Prioritizing the CPSC standards' importance in playground design has effectively disregarded the effect on other design elements that add interest and play value.

This thesis assumes that common playground apparatus evolved through the decades with major changes in three categories of form; height, hardness, and hinges. These categories of playground apparatus function were most often mentioned in the legal decisions and the various reports as contributing playground injuries. Over time, how these aspects are represented in the play environment, especially through apparatus, have changed and effected play value.

HEIGHT

Over time the trend has been toward the lowest possible attainable height. Attainable heights of 20 feet were common in the early decades of public play provision. Form changes, brought about by changing perceptions that play provision should incorporate more than just moving indoor gymnasiums to the outside, from 1900 until the 1920s were mostly practical. The equipment was now free-standing and not supported by the interior structures of buildings, so it had to be modified. Height was greatly valued, however, and this is evident in the effort and resources expended in material and engineering to allow great heights to be achieved. The major reduction in height that occurred from the 1920s until 1940s, from an average of 20 feet to one of 12 feet, accompanied a major population explosion. The reduction in height may have had

to do with reducing overall expense for the greater numbers of playgrounds that municipalities were supporting.

A few tall apparatus like the giant stride and merry-go-round remained over 10 feet tall, though the height a child could attain was seldom over 2 or 3 feet while on them.

Height offers the opportunity for climbing and climbing apparatuses remained popular. Dr. Joe Frost points out that climbing in many forms has immense play value applicable to a wide range of children and abilities (Frost 2007). Because of this utility, climbers remained the tallest structures on playgrounds through the 1950s, even when slides, teeter-totters, and swings got shorter.

By the early 1950s swings had been scaled down and climbing apparatus like monkey bars and jungle gyms rarely rose to over 8 feet from the ground. Swings remained the tallest structures on the playground through the 1960s, though the attainable height while swinging was seldom higher than 6 feet.

Slides also got lower and the platforms on top were covered or guarded to keep little ones from falling off. Playground owners and supervisors had known, intuitively, before the advent of national database tracking and computer-modeled injury investigations, what Frost and Sweeney noted; that one of two reasons that falls injure children are, “equipment is too tall…and the fall surface is too hard” (Frost and Sweeney 1995, 8).

Occasional art pieces, such as the 1970s Rocket Slides, rose sometimes to 30 feet, far above any other previous heights but they were fully enclosed. Their numbers

don't represent a significant change across the nation, with pictures of only around 160 posted on Pinterest (searched 7 Mar 2014). Though not prevalent in number, their effect was powerful. Comments from playground blogs associate these kinds of apparatus with wonderful childhood memories. For example, "Only a short distance from my house was a 3 story rocket ship. As a kid I actually wanted to live in the rocket ship" (NLogan 2008).

In the 1970s, playground apparatuses rarely rose over 8 feet and attainable height was eventually reduced to less than 4 feet in 1981 by CPSC recommendations.

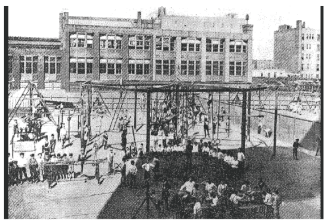
The value of height was obvious to the very first designers, and it also became remarkably clear that too much height was dangerous. A cautious reduction in height, however, was not enough to reduce injuries because the surface under the children, whether it was the ground or parts of other equipment, was generally too hard.

Table 2. Playground Apparatus Height Evolution

TIME PERIOD

Steel pipe construction, over 20 ft high

Boston Playground
credit: EB Marco



1900

1910

Ladder access to heights of 18 feet

Dallas Playground
credit: Dallas Pub Lib

Steel slide
8 -10 feet high

School playground
credit: Pittsburgh Pub Lib

1930

Flying Dutchman moves children 3-4 feet over the ground

credit: US Lib of Congress

Steel pipe construction, high swings 10-12 feet high

Rural playground
credit: Kaitlin O'Shea

1940

Wooden structures over 15 feet high with ropes and ladders

Bronx girl's climber
credit: US Lib of Congress

Tall, open-bottom merry go roound

credit: Christian Academy in Japan

1950

Tall iron pipe jungle gym

credit: Ministerely Primary School

Tall slide over 7 ft hight

credit:Scott on Flickr

Jungle Gym over 8 ft high

credit: Wayne Miller

1960

Playground with various height swings to match differing ages

credit:Grand Rapids Pub Lib

Jungle Gym over 6 ft high

credit: Mary Phillips

1970

1970s Rocket Slide over 24 feet tall, enclosed

credit:wiltme2.files.wordpress.com

HARDNESS

Hardness existed in two forms; the play surfaces and the apparatuses. As early as the 1890s many playground specialists recommended cork chips or pea gravel (torpedo sand), or an oiled and compressed cork and clay/sand mixture (DeGroot 1911, Hunt 1918) in various depths as the proper play surface, and made vehement note that concrete and asphalt were not suitable for playground surfaces (Arnold 1908, DeGroot 1911, Hunt 1918, Hurtwood 1968). Playground owners and operators shunned the suitable surfaces because of the regular maintenance they required. Reducing costs, as New York's Parks Commissioner, Robert Moses, had done from the 1930s through the 1960s, seemed acceptable even against the advice of play experts (Cranz 1991). Therefore, many surfaces were maintenance-free concrete, or asphalt, or were neglected bare earth, and some even remain so (Frost and Sweeney 1995).

The apparatus also was softened, mostly because of the danger involved with hard, high-speed objects like swing seats and heavy chains. There were also changes in texture from angular to round that accomplished a functional softening.

Outdoor play apparatuses require very strong support, so their materials tend to be very hard. Apparatuses from the early 1900s until the 1940s were mostly constructed of metal. Supports were very sturdy and through the 1920s saw a gradual softening and rounding in that time. Surfaces tended to be of concrete or untreated earth, though some playspaces used inexpensive wood chips to allow some degree of softening.

During the constructed playspace boom of the 1940s to the 1960s concrete and

asphalt surfaces were common because of their ease of maintenance. The apparatus went through a gradual softening, also. Traditionally angular metal supports, angular attachments, and the protruding bolts were now manufactured as intentional sets that eliminated most protrusions, included tubular metal supports, and utilized rounded joining hardware.

There were a few important softening innovations between the 1960s and 1980s. Hard wooden swing seats were replaced with heavy canvas or heavy molded plastic and the high impact, longboard swings disappeared.

It was not until plastics technology had progressed through the 1970s that the current stage of softening could occur. All metal parts, until this time, had seams and joints that tended over time to produce pinching, shearing, tearing, or slicing edges. High-strength, molded plastics could be extruded in unitary forms that eliminated the need to join different parts with seams and edges. Many different parts could be manufactured as a single "part" with almost no limits. Sliding boards, for instance, that used to consist of a flat slide and edge rails or retaining lips, could now be manufactured as a single part (see below).

For what was left that was not rounded metal or unitary plastics, the use of wooden structures with rounded corners completed the softening in the 1980s.

Table 3. Playground Hardness Evolution

TIME PERIOD

NY girls school with wooden swings and turf surface

credit: US Lib of Congress

1930

Dirt surface under exercise rings

credit: Daily Mail UK

Adult longboard swing with solid steel supports rather than chain

credit: Daily Mail UK

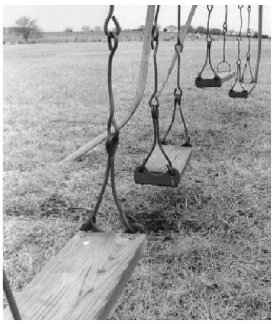
1940

Child's longboard swing, tube steel and solid wood

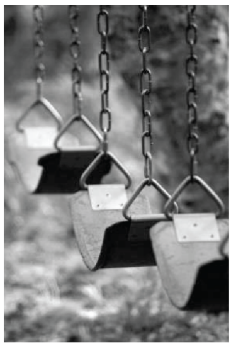
credit: Daily Mail UK

Hard seated swings had long support links and sturdy plank seats

credit: picturedepot



1950



Soft seated swings first used around 1930s, became common around 1950

credit: sphotos-a.xx.fbcdn.net

Angular metal slide with right angles between slide and slide sides

credit: Scott on Flickr

1960

Typical Robert Moses NY City play area. Hardscape concrete seperated by cyclone fence and concrete

credit: nyc.govparks.org

1970

Textural change to rounded form accomplished a functional softening

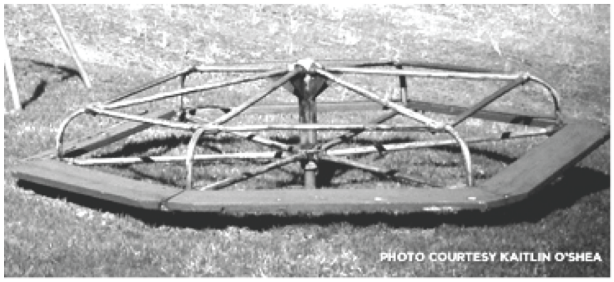
credit: rrcity.com

HINGES

Mutability or the ability to change shape or create movement is fascinating to children, so it holds that playground apparatus that move or change are very enticing and have a high play value.

Speed makes the device even more irresistible. The Flying Dutchman, teeter-totter, see saw, and flying swing were eliminated to remove the shearing, crushing effects their moving parts could produce. The merry-go-round survived because it was redesigned to eliminate the danger, but its other aspect, the speed one can achieve, has deterred many play providers from offering it on their grounds, making it far less popular than before. The teeter-totter, suitable for ages from 5 and up, was replaced by the spring-mounted riding apparatus, which eliminated the potential harm of a large rotating hinge, but limited the age range which could benefit from the apparatus to 2-5 years.

Table 4. Hinges on the Playground Over Time



1930s era open-bottom merry-go-round became rare around 1950s. credit: kaitlin o'shea

Modern merry-go-round with solid floor became common around late 1950s. credit: rrcity.com

Giant Stride, banned in 1930s, has no modern equivelant.
credit: US Lib of Congress

Flying Dutchman, not seen since 1940s, has no modern equivelant
credit: US Lib of Congress

Modern spring-mounted ride was the functional replacement for the teeter totter, but was useable only by 2-5 year olds. Became common around 1970s.

credit: www.showood.gr

Teeter totter required social interaction to work and was useable by 5-15 year olds. Not common since 1970s.

credit: US Lib of Congress

PLAY VALUE

Playground form changes occurred gradually, as the legal system, society, and concerned industries reacted to changes in the law, the perception and expectations of safety, and an understanding of play's place in society. The form that playground apparatuses have taken over time indicates a transition from an attitude of risk acceptance to one that is averse to any risk.

Design changes reduced overall height, softened the elements involved, and eliminated many of the common shearing or pinching parts. Overall, the effect of these changes on accident rates prior to 1972 is unknown since there were no statistics kept regarding playground injuries prior to 1972. Whether the implementation of these changes is counter to any established playground design principles is an area for further study. The changes did affect play value.

It seems that CPSC standards make it very difficult for designers, and expensive for play providers, to include the most attractive play elements that increase play value, such as mutability, loose parts, and natural, open spaces. CPSC standards have managed to reduce play value, and ss currently implemented, their applicability to an environment that utilizes risk to achieve value is questionable.

In *American Playgrounds: Revitalizing Community Space,* Susan Solomon points out that the safe environment, according to Arlene Brett, Robin C. Moore, and Eugene F. Provenzo Jr in *The Complete Playground Book*, "lacks most of the important elements necessary for meaningful play. These include variety, complexity, challenge, risk, flexibility, and adaptability" (Solomon 2005, 84) . Table 5 utilizes examples from

Solomon to compare pre- and post-1980s playground elements. Using 1981 as a point of comparison since it is the year of the CPSC's first *Handbook for Public Playground Safety*, shows a decrease in play value before and after the CPSC's standards were put into writing. Few of the common, post-1980s items are mentioned in the writings of play experts, compiled in Table 6. The preponderance of elements that add play value were present in pre-1980s playgrounds and apparatus.

Table 5 Play Value Pre and Post 1980s

Quality	Pre 1980 items	Post 1980 items
Manipulatable	Sand, gravel, blocks, wagons, tools	Tic-tac-toe
Changing	Teeters, balancing items, merry go rounds	Voice tubes, musical additions,
Interesting	Slides, swings, ladders, climbers, hills, alcoves/tunnels, climbing walls, monkey bars	Rope climbers, swings, slides, climbing walls, monkey bars
Attractive	Tall swings and tall structures, water/splash	Short swings, rope climbers, water/splash

Some items of play value, like slides and swings, are still present post 1981, though their characteristics, such as height, attainable maximum speed have changed.

Play value is a measure of how much play one can get out of something. Better play value is held by things, places, and spaces, which are compelling and encourage children's involvement. Interesting places, changing objects, mutable materials, and objects that children can manipulate have high play value. Jean Lee Hunt described the intrinsic value of playthings as follows,

> The play of children on it and with it must be spontaneous [and it must have] adaptability to different kinds of play and

> exercise. It must appeal to the imagination of the child so strongly that new forms of use must be constantly found by the child himself in using it. [It should be] adaptable to individual or group use. It should lend itself to solitary play or to use by several flayers (sic.) at once (Hunt 1918).

The play value aspects from various designers and playground experts; Julian Richter, Jean Lee Hunt, Darrell Hammond, Susan Solomon, Dr. Joe Frost, Märit Jansson, and Tim Gill, range from a child using various senses, to the objects having progressively difficult aspects.

Table 6 Play Value by Author

Author	Aspects
Richter	Varied terrain, hills with banks, variety of ground surfaces, appropriate planting, atmosphere for deep play, challenges, risks, adventure (Richter 2011, Richter-Spielgerate 2011)
Hunt	Exercise, spontaneity, creativity, appeal to the imagination, provide new uses, group play, solitary play, safety, durability, weather proof (Hunt 1918)
Hammond	Imagination, risk, achievement, mastery, progressive levels, challenge (Hannan 2012, 10)
Solomon	Draws attention, varied materials, risk, engages senses, natural forces, locally relevant (Solomon 2005)
Frost	Risk, challenge, games, progression, little or no supervision, interesting over time, outdoor, free, spontaneous, child-led, nature (Frost 2007, American Journal of Play 2008)
Jansson	Variation, complexity, manipulability, character, change over time, specific place context, social dimensions, children's possibilities and perspectives, children's development and learning (Jansson 2010, 67)
Gill	Height, risk, social, physical, psychological (Ball 2002)

In Table 7 a compilation of play value to the child also shows examples of environmental aspects that are present to create such play value.

Table 7 Play Value Aspects

Play Value Category	Environmental aspect	Value to Child
Use senses	Sound, colors, height, speed, gravity, textures, smell, temperatures	Attracts attention, invites interaction, educates about the physical properties of the world
Progression	Challenges exist even after success	Invites interaction, demands concentration, builds skills to assess and make decision
Gross Physical	Height, distance, textures, mass, momentum, challenging	Involves gross muscle coordination, sense of accomplishment
Fine Physical	Textures, weight, sheltered	Sense of community, gathering, sorting, counting, discovery
Nature	Forces and aspects of nature; water, gravel, dirt, grass, sand, plants, sun, shade, sounds, wind, heat, cool, natural materials and patterns	Experiential, sensual, child learns cause and effect, introspective, contemplative, sense of self, discovery
Manipulate	Objects or items that can be moved in relationship to each other	Move objects, change shapes, analyze, predict, evaluate
Mutable	Changes over time	Passing of time, cause and effect
Sense of Place	Locally derived forms, unique materials, meaningful placement	Create unique memories , Connections to place or time
Social	Sheltered spaces or sheltered areas	Quiet or rambunctious interaction with peers, leadership, trust
Interesting	Draws attention, invites sensual or intellectual exploration	Concentration, focus, curiosity
Adaptable	Serves several purposes in a single form	Fantasy and Imagination
Risk	Challenges with attractive rewards	Develops trust, leadership, provides sense of accomplishment and consequences
Attractive	Demands attention, esp. from a distance	Focus, interpretation, attention

Figure 17 Standard Tower
credit: Playworld Systems

Figure 18 Pier 6 Tower
credit: MVVA

Figure 19 Mobius Climber
credit: Landscape Structures

Figure 20 Gothenburg Whale
credit: flavorwire.com

Designers have a critical role in creating useful playscapes. The task is made more difficult and the product made more expensive by adherence to the CPSC standards. The natural inclination of designers is to produce a high quality product but the highest quality possible under the accepted standards is less than optimal.

Play value among the standard or common apparatus are lower than those of unique apparatus. In unique designs an absence of channelized paths, protected by railings and barriers contribute to this disparity. With the exception of safely enclosed structures like the Pier 6 tall tower, unique apparatus can be approached and accessed from any angle. The Mobius Climber has high play value because it is not just an attractive, risky-looking, challenging climber, but can also provide spaces for gathering and social play. Likewise, the space under the tree tower is cleverly designed to provide quite or imaginative play.

The Gothenburg whale also provides

Figure 21 Annabau
credit: Landzine.com

enclosure and discovery but goes further, incorporating risk by inviting small children to clamber on top of a life-sized whale replica or venture into the gaping maw. Monkey bars are always a challenge because children are always developing upper body strength, but monkey bars' play value is very limited. Other approaches to upper body strength development, like Annabau or Paris Climbing Walls, are risky, complex, and create a progressive challenge for all abilities, not solely limited to brute strength. The play value of a simple tree-turned-sideways has much to do with its complexity, natural form, and freedom to take risks in a wide variety of unscripted activities. Play value in common apparatus is generally lower than that found in unique apparatus because risky elements have been removed.

Figure 22 Paris Climbing Walls
credit: flavorwire.com

Figure 23 Tree Climber
credit: rethinkingchildhood.com

As American playground apparatus design changed over time the most injurious aspects of the environment, height, hardness, and hinges, were redesigned to reduce the probability of causing injuries. Play value was unintentionally reduced as well, as risk averse strategies were implemented, seeking fewer playground injuries.

The CPSC's recommended standards, though voluntary, have influenced the amount of play value on American playgrounds. Playground apparatuses that have become common, through industry efforts to reach compliance with safety standards for injury prevention, are less risky and have lower play value than more expensive, unique, risk-incorporating apparatus. Conversations with six leading playground equipment industry sales professionals, the CFO of Beauvoir School, and a designer from Michael VanValenberg and Associates suggest that unique apparatus is rare and expensive, in the U.S. This has direct and indirect effects on play in America.

CHAPTER 7

THE OVERALL EFFECT OF CPSC STANDARDS ON AMERICAN PLAYGROUNDS

Chapter 7 summarizes the thesis, showing an overall trend toward design for the lowest common denominator, an effective “dumbing down” of American playgrounds through adoption of safety standards as the main measure of playground suitability. The direct and indirect effects that CPSC standards have had on playground utility and the perception of play’s value is examined. In addition, the difference in play value between commonly installed playground apparatus and more risky playground apparatus is examined, and a recommendation for a new paradigm concerning the role and function of risk in play is suggested.

Playground form has changed dramatically since American governments started providing play spaces in the early 1900s, as has the play value that the playgrounds provide, and the extent to which play is valued. The factors affecting these outcomes revolve around the understanding of risk’s role in play, and how Americans have chosen to deal with risk.

The most powerful effect of the CPSC standards is that they perpetuate an aversion to risk that manifests as designs that commonly lack sufficient risk to encourage effective, healthy play.

INDIERECT EFECTS ON PLAY

Indirectly, CPSC standards affected the consideration that playground operators gave to play. Play's value was weighed primarily against the possible cost of lawsuits. Subsequently, the allowed time and proper places for play began to disappear. With fewer useful, outdoor, active opportunities children's leisure time is being occupied by sedentary screen time.

A recent issue in Cabell County, FL illustrates the thought process of many playground operators to consider cost, first. After an elementary school student fell from a swing the county agreed to an out-of-court settlement for medical costs and damages. Wary of another expensive incident, the county examined its playgrounds and found that all swing set fall zones were not compliant with the CPSC standards (Chambers 2010).

Although the rules regarding ground cover have not changed in 20 years, the county noticed this situation all at once. Faced with the $300,000 cost of bringing 31 of the school district's 34 swing sets into compliance with CPSC safety recommendations, the Cabell County Board of Education considered taking the swings down. At this point Tom Kalousek and State (W. Va.) Senator Evan Jenkins contacted the Board of Education to discuss their options. Sen. Jenkins told the Board of Education that he was proposing tort reform at the state's senate session. Kalousek remarked, though, that there have been no changes to the standards in 20 years, and it seemed that the Board of Education had had to take notice of the standards because they had been sued (Ibid.).

This case makes an interesting point, which is the same one that Dr. Joe Frost and Theodora Sweeney pointed out in their 1995 study. Their extensive, nation wide study of school and public playgrounds found that overall, public playgrounds were not in compliance with CPSC national safety standards. They found that in injury litigation cases, some of which involved deaths, "…violations of CPSC/ASTM guidelines/standards are implicated in about nine out of ten serious injuries…" (Frost and Sweeney 1995, 7-8). It is no wonder, then, that children are injured every year! It is established that surface maintenance is the most neglected task (Ibid., U.S. Consumer Product Safety Commission 2010, 2,3), but playground operators still seem to be unclear on what aspects of their playgrounds need attention.

Some playground operators are so afraid of lawsuits that prohibiting play appears like a possible option. Chris Kahn, South Florida Sun-Sentinel reporter, reported in the July 2005 Augusta Chronicle that children and parents were dismayed and upset that Broward County, FL, school officials posted "no running" signs on the school playgrounds. School officials were hoping the signs would reduce exposure to lawsuits (Kahn 2005). Displaying an absolute misunderstanding of the NEISS data the CPSC reports, Broward County Safety Director, Jerry Graziose, said that swings and the merry-go-round would also be removed since, "They've got moving parts. Moving parts on equipment is the No. 1 cause of injury on the playgrounds," when asked by Kahn about the teeter-totters, Graziose said they would be removed, also (Ibid.).

A similar thought process is evident in Fairfax Virginia, where it was the presentation of play risk that prompted a playground inspector to place a CPSC

standard compliant play apparatus off limits. A 2013 Washington Times report about a new school playground in Fairfax VA relates the bewilderment of children who returned from Thanksgiving break to find a new playground, but were warned the next day to stay off the new apparatus. One student said, “I was upset because it was fun. It was exciting to have a new piece of equipment at the playground because the old pieces I got so bored at(sic.)” (Shapiro 2013). The apparatus was roped off in caution tape like a crime scene because a local playground inspector said the CSPC-compliant apparatus exceeded the county’s own height limitations. Stephen J. Smith, quoted in a 2002 report for the UK Health and Safety Executive on playground risk and benefits, says in his 1998 book *Risk and our pedagogical relation to children*, “Children seek out opportunities for risk-taking and it is the responsibility of play provision to respond with exciting and stimulating environments that balance risks appropriately” (Ball 2002). The priority has shifted from providing appropriate play, to avoiding risk.

Not only are apparatus being removed or roped-off, but the time for child’s play is also being denied. There is no national standard allowing for or mandating recess. Depending on state or county laws there are 0 to 1.5 hours of the school day dedicated to recess and this time becomes vitally important to a child’s health because it is the sole opportunity to participate in physical play (Johnson 1998, Pellegrini 2008, American Journal of Play 2008). School administrators can feel very wary about placing the children under their charge in a situation where risk is involved. They misunderstand what constitutes a hazard and err on the side of misguided caution, wanting to reduce

the overall risk to the children even if this means denying the time for play that is fundamental in proper development and school performance.

The CPSC standards, unfortunately, do very little to assuage these fears, since the standards focus not on conveying the healthy benefits of properly created and safely presented risk, but make the playground operator focus on the injury potential that exists. The CPSC Public Playground Safety Handbook starts by reminding playground operators that, "In recent years, it is estimated that there were more than 200,000 injuries annually on public playgrounds across the country that required emergency room treatment" (U.S. Consumer Product Safety Commission 2010, 1). This attitude, though certainly appropriate in a balanced environment, is the sole attitude presented by the only agency whose recommended standards have legal standing American in courts and that creates an unbalanced view of playgrounds that, indirectly, is detrimental to American children's health.

The very real possibility exists that the whole environment of play can be scuttled if administrators are not aware of the unbalanced arguments about play, risk, and safety. This was the case in the United Kingdom in 2011 when *The Guardian* reported, that, "Judith Hackitt, head of the Health and Safety Executive (HSE), accused schools and councils of using health and safety rules to avoid providing activities that might cost money or expose them to being sued" (Batty 2011). She further explained that "people behind unreasonable rulings were often 'well-meaning but misguided jobsworths' who go too far … [imposing] restrictions not out of concern for people's safety but due to

fears of no-win no-fee lawsuits for personal injury" (Ibid.). Administrators have an obligation to consider the valid arguments on both sides before making judgments.

Another indirect effect of CPSC standards is the societal cost or what the entire community looses when fear-based tactics are implemented. In Broward County, for example, a single incident to a single child resulted in the loss of play value, and the chance for all of the district's children to develop naturally (Randal 2007).

Indirectly the CPSC standards disallow counter arguments in what constitutes proper childhood environments. Some playground operators' behavior is difficult to explain because they prepare for "inevitable" suits by limiting recess time and removing play apparatus, as in Broward County's case, rather than complying with standards that nearly assure their success in courts, as *Newman v Oceanside* shows, and allow for children to develop well and perform well. This is certainly fertile ground for further study. For the purpose of this thesis, the pattern of dodging a public duty in favor of acting to avoid risks is indicative of risk averse behavior and though certainly not proper, is taken as it has presented itself.

Since the landmark date of 1972 when the CPSC was created, children's playgrounds have evolved through direct and indirect effects of the CPSC policies in an environment of perceived risk, intense litigation, database-driven actions, standards implementation, effective product recalls, insurance shock, and increasing child illness rates without the benefit of effective national policy guidance that would consider all of the contributions that playgrounds make. Playgrounds are far less useful than they should be. CPSC-compliant design has contributed to this, but the fear and risk aversion

that the CPSC standards created contributes more. Because the standards were created without the benefit of a strategy that considers play value as well as injury prevention the CPSC standards are the sole, Federally backed, regulating guides in an environment where there should be higher priorities than reducing risk.

Prior to *Styer v Reading (1948)* no cases show a finding for the citizen plaintiff, and whether by choice or under the imposition of the courts, the public was responsible for its actions on he playground. The courts assume that governments are acting with reasonable care, unless plaintiffs show otherwise. This legal climate allowed playgrounds to take many forms, depending mostly on the supporting system's means. The major shift in public responsibility that came with the concept of strict liability, allowed citizens to seek torts against industry, and playground form began to change, slowly, based on legal cases. Without a set of standards to measure against, though, torts did not affect governments, since manufacturers were strictly liable for damages. This also allowed governments to continue operations as they had in the past, and perhaps even less diligently, as *Pritchette v Manistique (1978)* shows. Many companies chose to settle damage claims out of court and the legal system had no impetus to change until the CPSC standards allowed citizens to use standards to settle liability claims. With the responsibility for injury now firmly on the government or play provider, citizens sought an injury-free play environment, as the CPSC proposed. Play providers became likewise averse to risk, using the CPSC standards as their measurement for suitability.

The overall effect was that play providers, understanding the nature of play, expected injuries, and likewise prepared either by spending the resources to become compliant with CPSC standards or by removing equipment and situations that were not explicitly in compliance. The public became averse to risk because the CPSC gave them the expectation of safety by mistakenly seeking to remove risk from the play environment just as it had done in its other areas of responsibility. This mistake perpetuates a cycle that negatively affects play value and the play environment.

CONSEQUENCES OF CHANGES TO THE PLAY ENVIRONMENT

The most profound effects of the risk averse attitudes is its effect on the value of play as an activity. Perhaps the most obvious manifestation is in the removal or reduction of recess that are traditionally mandatory play periods in the school day.

Some school districts have chosen to remove recess from the school day, demonstrating a devaluation of play. In 1998 the New York Times reported that major city school departments were eliminating elementary school recess (Johnson 1998). Among districts that eliminated recess, Chicago provides a prominent example. Chicago school students had a “no recess” policy from 1998 until 2012. According to administrators, recess needed to be eliminated from the daily lives of the children under their care because of, “... academic pressures…a fear of lawsuits if children become injured, a concern about the possibility of unsavory adults lurking at the edges of playgrounds and a shortage of teachers and volunteers willing to supervise the children” (Johnson 1998). This appears to have had serious consequences, since the Chicago

children that grew up during that period are becoming young adults just as the murder and crime rates in Chicago are topping those of the nation (Wilson 2013). In 2012 the Chicago Public School System reported on its web page that it would provide recess each day for elementary school students, starting in the 2012-2013 school year (Chicago Public Schools 2012). There is a demonstrated value in play, and providing the opportunity is essential.

Recess is an opportunity for play that has immense value, as important experts point out. Catherine Ramstetter, MS, PhD, is the Assistant Director of the Center for Enhancement of Teaching and Learning, University of Cincinnati, she reflects what many studies have been saying since the 1980s when public schools began reducing recess time in hopes of improving academic performance. Recess and unstructured play builds the creative, social, and emotional aspects of a child (Catherine L. Ramsteter 2010, 518). Recess and the play it provides are so critical in forming a well-functioning child that recess should not be "withheld for academic or punitive reasons" (Ibid. 524) . Furthermore, the National Association of Early Childhood Specialists in State Departments of Education cites the United Nations Convention on Children's Rights that says, "Recess is the right of every child. Article 31 of the United Nations Convention on Children's Rights states that every child has the right to leisure time. Taking away recess whether as a disciplinary measure or abolishing it in the name of work, infringes on that right" (2001, 1). Recess's value, because it is a reliable opportunity for play, cannot be dismissed.

Despite decades of solid research about the value of play and recess during the school day, child development experts have to constantly remind administrators that there is no data suggesting any benefit from eliminating recess. Anthony D. Pelligrini, PhD. Emeritus Professor of Educational Psychology at the University of Minnesota, has written extensively on children's education since the 1980s. He concludes a 2008 article in the *American Journal of Play*, titled "The Recess Debate, A Disjuncture between Educational Policy and Scientific Research", with the following:

> Some devalue recess because they assume it to be – as they assume play in young children to be – a waste of time, time that could be otherwise more efficiently spent. *There is no theory or empirical evidence to support this point of view.* The counter-argument, that recess is good, is backed by a large body of theory and empirical research. Those who advocate the elimination of recess should present sound theoretical and empirical support for their arguments or give them up and recognize the abundant and clear evidence that recess has beneficial effects on children's social competence and academic performance (Pellegrini 2008, 190).

There is abundant evidence that the risk to children's development is in eliminating play, not in incorporating risk into play. Parents and administrators and playground operators can be confident, since the wide studies from experts like Dr Joe Frost, and Dr. Anthony Pellegrini, strongly point out, that risky play and even its bumps and bruises will yield a properly developed, more resilient child (Frost 2006, 6, Pellegrini 2008).

School administrators can sometimes become so myopic about reducing risk that their decisions seem illogical to outside observers, especially parents. In 2007 when a

child broke his leg during a game of Red Rover, the family sued the school district but had to settle out of court for $15,000. Even though the case did not go to court, the conditions of the settlement stipulated that the game be banned from the school district (Brandi Powell 2013). Some parents were very upset about the school's decision, and their reasoning reflects what is the underlying consequence of devaluing play, the loss of childhood. "I think it's kind of ridiculous. I mean, kids play. I mean, we played when we were kids and I don't know, I just don't think [the school district] should be sued for kids playing and getting hurt" (Ibid.).

Another consequence of play becoming less attractive and undervalued is that children are becoming more occupied with sedentary video games and "screen time". Screen time is insidious because it seems harmless, of itself. But if screen time takes the place of physical activity, especially outdoor playtime or creative free play indoors, then it is as culpable of doing harm to children as any other sedentary behavior. The abundance of screen time is only a part of the equation, as S.J. Marshall, Department of Exercise & Nutritional Sciences, San Diego State University, points out in the study of clustering sedentary behaviors. He shows that laboratory-based studies conclude that "most children" find sedentary behaviors "more reinforcing than physically active alternatives" (Marshall et al. 2002).

The game and electronic media industries utilize child reactions to test their products for massive appeal (Read, MacFarlane, and Casey 2002). Electronic game creators' efforts are not hobbled by unattractive designs imposed by Federal agencies for reasons of safety. Screen time seems very harmless because the children seem to

enjoy it so immensely. That has less to do with the fact that their bodies and minds are deteriorating while participating in screen time, and more to do with the very design of screen time interfaces. The games are designed solely to attract and occupy. They are very good at creating fun. Playgrounds that look boring and fail to appeal to the sense of risk and promise of fun cannot compete with the promises of sedentary electronic interfaces. The consequences are profound.

Through the progressive attempts at reducing injury, the CPSC standards, dependenton the fear of litigation, drove the industry toward a compliant style and also drove playground operators toward an increasingly risk averse attitude. The overall effect across the nation has been to make even more startlingly evident the success of risky playgrounds for the few communities with the resources to implement them.

The few effective playgrounds are owned and operated by agencies with far more financial means than most cities can muster. For the majority of the population, playgrounds have taken on a centralized, tower-based form. The parts have become very unitary and static, almost melding into one another. There is little variation between playgrounds and a very pronounced lack of height and mutability. Risk and play value exist mostly for children of communities that are highly motivated to purchase custom equipment and insurance to fit the perceived risk.

Figure 24 Log Pile apparatus is risky and fun with no railing, credit: Richter Spielgeräte

It is possible, though, to construct a CPSC-compliant environment with extreme heights, safe forms, and safe fall areas. The Beauvoir National Cathedral Elementary School, in Washington DC, and Pier 6 Playground in Brooklyn are CPSC compliant but contain risky elements that add immense play value.

Figs 25 and 26 Beauvoir School's bridge and tower slide. credit: beauvoirschool.org.

Figure 27 Beauvoir School's play tower and bridges, the three-story slide, climbing tower. credit:beauvoirschool.org

The key to the Beauvoir National Cathedral Elementary School playground's success is not quantified by the CPSC standards, though it needs to be. This private school's literature says that the element of care for the children, through insisting on high play value, that the community of parents and teachers show is what sets it apart (www.beauvoirschool.org).

Quality supervision, as advocated by Lady Allen of Hurtwood, Dr. Joe Frost, Dr. Frances Wallach, David Ball, and Tim Gill among many others, has a value that cannot be underestimated since it seems to make a critical difference when designs with exciting and unusual features present themselves to a community.

The Beauvoir National Cathedral Elementary School installed a Richter-designed educational playscape in 2013 and its European-inspired, built, and designed elements caused consternation among those not used to seeing playgrounds with three-story towers connected by rope bridges. Mr. Arthur Hall, Chief Financial Officer, Beauvoir,

said, "We have found that intelligently supervised children tend to navigate safely just as Richter (the designer) would expect" (Hall 2014). The school's playground is open to the public and is already a favorite among families in the Washington DC area. Mike Madden, editor of the *Washington City Paper,* put the Beauvoir School playground at the top of the paper's Top Picks list in 20014, saying that, "…the playground dazzles parents used to the more plebeian parks found elsewhere. Kids? They're…busy flying down a two-level, fully enclosed slide that runs underground, or climbing across rope tunnels between giant wood towers…(Madden 2014)".

Examples of thrilling, CPSC-compliant apparatus are rare in the U.S. due to their construction cost. The unwillingness of many communities to choose these risky-looking, high-play value apparatus at any price shows the most devastating effects of CPSC standards; the devaluing of play through an aversion to risk. Devaluing play has serious consequences for child development and health nationwide. The overall implication of devaluing the play environment and even play, itself is not lost on the children. Adults must show an understanding of the relationship between risk and safety and accept a certain degree of designed and calculated risk in playground design.

CONCLUSIONS

Understanding the relationships between risk, play value, and safety will allow Americans to accept a certain degree of designed and calculated risk in playground design, but the legal force of CPSC safety guidelines coupled with a misunderstanding

of risk and danger make it very difficult for the proper agencies and public to engage in constructive dialogue.

There are several problems with the CPSC's safety recommendations for public playgrounds but three fundamental issues appear to be the root of the others. First, the standards perpetuate a misconception that risk and danger are the same: that risks create injuries. Second, the standards are based on an incorrect concept, that safety in the playground environment can best be achieved through reducing risks. Third, the measure of compliance with safety advisements is not a proper gauge of a playground's affectivity.

Regarding the first point, confusing risk and danger created an atmosphere of risk aversion. This confusion is not the sole responsibility of the CPSC, because the American legal profession, the insurance industry, medical associations, education and child development professionals, and play providers in industry and government all have a role. Risk and danger are separate concepts that have different effects on the play environment and its users. Differences between risk and danger are not a matter of degree, but are a matter of their distinct sources coupled with the environment.

On the second point, playground safety cannot be achieved by reducing risks, but is best pursued by eliminating dangers. The playground reflects the nature of play, itself; chaotic, random, active, and ever changing and because it is occupied by humans, any situation can become even more obscure and chaotic. Risks abound in any place where chaotic play and willful humans interact because that is the nature of

the interaction and also the necessity of play's purpose. Reducing risk in play involves removing purpose from play.

Finally, an area's suitability for play and its compliance with safety regulations are distinctly separate issues. Playgrounds are most effective when children are allowed to find and follow their own course during free play. Effective free play requires the presence of materials and conditions that current safety regulations advise against, limit, restrict, or prohibit. Safety advisements and regulations are very good at eliminating dangers where cognizant, mature adults perform predictable tasks in a tightly controlled environment. Safety regulations do not ensure the quality of environment where risk is a part of operations such as: highways, alcohol consumption, warfare, and sports. In these environments the user must take responsibility for his or her actions and the results. Socially, developmentally, and economically it makes more sense to rely on playground users to ensure their own safety. The level of effort involved in achieving a fully regulated environment that is also an effective play area can be enormous: e.g. Six Flags, Disneyland, Pier 6 playground, etc.

Some additional discussion about how these points relate to themes throughout the thesis is necessary since the issues are very complex and do not operate separately from each other.

RISK AVERSION

Play providers and playground operators have adopted the risk averse attitude as a survival mechanism because the CPSC guidelines set the legal standard for

negligence at zero risk. When organizations only comply with CPSC standards, play value is decreased because beneficial risk is removed.

Playground operators cite the CPSC guidelines as the top reason for closing playgrounds or removing apparatus. The fear of lawsuits and desire to remain free of expensive legal pitfalls is the prime motivator for compliance in a legal system that has no provision for healthy, designed risk in children's play environments.

Since risk is an integral part of playground apparatus design the CPSC's goal in eliminating injury through reducing risk on the playground opposes a basic tenant of sound playground design, which is the inclusion of risk.

LACK OF DATA AND AWARENESS

Without data that indicated the conditions at playgrounds in the U.S., injury prevention became the sole measure for success. As injury rates remained steady the CPSC has had to react to injuries without robust data that represented the causal factors across the wider, national spectrum of playground conditions. Given the lack of pertinent data that would allow for reasoned, exacting decisions, the CPSC works to reduce any and all imagined or real risk factors.

Nearly all changes in playground form, until the 1980s, seemed to happen as individual playgrounds were built or as they ended their useful lives, as if it the time to update to the current designs happened only on long, lifecycle periods. As a result, many different forms and styles existed at once, the old existing alongside the new, until the 1970s.

LEGAL ISSUES

From 1972 until 1981 the courts had made liability decisions based on the reduction of sovereign immunity and the concept of strict liability. Manufacturers and playground operators took drastic action in order to survive, financially. Usually the result was removal of playground apparatus types that had been involved in case decisions or out-of-court injury settlements.

After the CPSC's publication of *A Handbook for Public Playground Safety* in 1981, legal actions, arising from the courts' acceptance of the CPSC standards, figured as the primary factor that accompanied playground apparatus changes and reduced play value. The scientific basis for the CPSC's voluntary standards, provided by the American Society for Testing and Materials (ASTM), effectively gave the voluntary standards legal force since the ASTM's conclusions regarding injury reduction practices were accepted in courts as the design standard for a playground that was designed to reduce injuries. Designs that did not meet the standard left owners and operators open to liability.

Prior to 1972 the courts were making policy that set the standards for playgrounds based on the greater good, using sovereign immunity to allow government to continue operating without the fear of torts. The assumption that governments were making sound decisions and using reasonable care was misplaced in some cases, and this is evident as, over the years, the shield of municipal sovereignty began to be lowered.

Perhaps most important in the years prior to 1972 is the legal trend toward an environment of strict liability where manufacturers became liable for the harm their products caused, regardless of the circumstances of use. This set the legal stage for the expectation of compensation via torts for many products, regardless of their use or ownership, such as playground apparatus. Strict liability also afforded the opportunity for lawyers to extend an isolated incident's effects to the worst case scenario, effectively transforming the concept of risk into perceived danger (Barton 2006).

The national insurance industry failure of the 1980s effected the play environment because play providers could no longer insure against injuries at reasonable costs and many playground operators resorted to removing apparatus and removing play activities because of the rising tide of risk aversion. Litigation created a fear of litigation and the added lack of insurability incited risk aversion that affected play in America.

DUMBING DOWN PLAYGROUNDS

Comparing the form of the equipment commonly available at schools and parks to the forms in the most popular playgrounds that Americans have visited reveals a distinct difference between what apparatus is widely available and what is widely desired. It also reveals a playground gap between affluent communities and those with more modest means, and this is fertile ground for further research.

Perhaps most striking is that the changes intend to prevent hazards that are encountered by the smallest minority, but the design changes affect the entire

population's potential benefit. Whether injuries are indeed more prevalent than NEISS data suggests is a subject for further study. A study conducted in the UK established that injuries occurred to far fewer participants in playgrounds, by proportion and total numbers, than football (soccer) and other organized, well-funded sports activities, yet the supporting agencies were allowed to operate independently (Ball 2002, 61-68).

The CPSC standards encouraged the American aversion to risk and brought about playground design changes that focus on the smallest minority of its users, those who get injured.

RECOMMENDATIONS

Most important is that interested municipalities and states pursue the protections of limited liability that their state legislatures can afford. Though several states, Kentucky among them, have some form of limited liability that indemnifies their municipalities from liability in certain public parks and playgrounds, each state should study the most effective means to and how that will shaoe the eventual end of this path.

The CPSC should reconvene an advisory council of experts from; the playground industry, child development filed, medical profession, educational profession, municipal, park and school representatives, insurance industry, adventure playground designers in Europe and the US, IPEMA, and the National Recreation and Parks Association (NRPA) and charge the committee to evaluate the CPSC's public playground safety advisory recommendations as they relate to supporting childhood health, free play, and risk in playground design.

The CPSC assign the NRPA oversight responsibility for playgrounds and playground products currently within the CPSC's pervue and establish a bi-lateral committee to set conditions and a date for turning over full or partial responsibility for playgrounds and playground products to the NRPA. In the interim, the NRPA act within the CPSC as the advocate for effective play.

A national program for educating and developing a Play Leader career, under the NRPA, should be instituted. Play Leaders be trained to become the trained cadre of professionals that inspect, maintain, and help design playscapes on all scales in communities at all levels of government as Frost, Ball and others have recommended.

Each state should establish its own monitoring program, under the Play Leaders, to track the state and condition of its playscapes. States should be held accountable for the condition of their playscapes through the NRPA and CPSC.

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